



EMERGENCY RESPONSE ACTION PLAN
FOR
MARYSVILLE WHARF AND TERMINAL FACILITY

FRP 0500017

THE DETROIT EDISON COMPANY
MARYSVILLE TERMINAL FACILITY
301 GRATIOT AVE
MARYSVILLE, MI 48040

(Quick Grab ERAP packet for Emergency)

1.1- Facility Information

Facility Name: Detroit Edison Marysville Terminal Facility

Owner: DTE Energy-Detroit Edison

Owner Address: One Energy Plaza, Detroit, MI 48226

Dun & Bradstreet Number: 072762904

Standard Industrial Classification code: 4911

Wellhead: None on the site, No surface impoundments on site.

Largest aboveground storage tank: 18.7 million gal

Number of aboveground storage tanks: 3

Maximum oil storage capacity: 20.9 million gal

Worst case oil discharge amount: 18.7 million gal

Facility adjacent to navigable waters, St. Clair River and Bunce Creek.

1.2 - Location Information

Facility Address: **301 North Gratiot Ave.**

Marysville, MI

48040

County: St. Clair

Latitude: 42° 55' 32" North Longitude: 82° 27' 33" West

Section: 28 Township: 6 N Range: 17 E

1.3 – Contact information

Marysville Terminal 24 Hour Phone Number: (810) 364-9390

Marysville Terminal Fax: (810) 364-2210

1.3 – Contact information (cont.)

Qualified Individuals

Primary	Secondary
Joe Neruda Environmental Compliance Specialist	Steve Down Principal Environmental Engineer
Work phone: (810) 326-6356 Pager: (313) 212-3949 Home phone:	Work phone : (810) 326-6355 Pager: Home phone:

The QI's have been trained as level 5 Incident Commanders and receive annual refresher training. They also have been trained in oil recovery and oil spill prevention.

Current Information on facility is available in section 7.1 of this manual.

2.0 EMERGENCY RESPONSE ACTION PLAN

1. Any employee discovering an oil spill must immediately notify his or her supervisor, and the on-duty Shift Supervisor. If a spill has reached the river and a contractor will be needed to minimize the damages, call in an OSRO listed in 3.a.1. on following page First. The on-duty Shift Supervisor must notify the Primary or Alternate Qualified Individual (QI) immediately. The on-duty Shift Supervisor will act as the QI until the Primary QI is on site.

Primary	Secondary
Joe Neruda Environmental Compliance Specialist	Steve Down Principal Environmental Engineer
Work phone: (810) 326-6356 Pager: Home phone: Cell: (313) 212-3949	Work phone : (810) 326-6355 Pager: Home phone:

Duties of the QI are listed separately in Section 2.3 and are included as part of this response procedure.

2. In the event of any possible fire, explosion or release of oil that could threaten human health or the environment, the QI or delegate must:
 - a. Activate internal facility alarms and communication system to notify all facility personnel. The Marysville Fire Fighting and Evacuation Procedure is found in Appendix D.
 - b. Immediately identify the character, exact source, amount and the extent of any released oil material. Also, determine the number and extent of injuries, if any. Make every effort to stop and contain the spill. Use HAZWOPER Awareness Level trained personnel to deploy oil containment equipment away from the immediate spill area. DECo personnel with Awareness Level training should NOT directly engage the spilled material until any hazards have been deemed safe and allowable.
 - c. Assess possible hazard to human health or the environment. This is done by determining the chance that released material may reach Bunce Creek, the St.Clair River, or off Detroit Edison property over land.

2.0. - EMERGENCY RESPONSE ACTION PLAN (cont.)

3. Use the form in Power Plant Order 222 to document all notifications to internal DECo personnel, government agencies, contractors, and others regarding the emergency incident. A copy PPO 222 is inserted on pages 33-44.

a. Should the spill of an oil material reach the environment (Bunce Creek, St. Clair River, or off DECo Property over land), the following government agencies must be notified immediately. Do not wait for collection of all information regarding the spill before starting these notifications.

(Notification Phone List)

1. Oil Spill Response Organization (OSRO) (313) 849-2333
Marine Pollution Control, see 14 below for additional OSROs
2. National Response Center Phone: 1-800-424-8802
3. Primary QI: Joe Neruda
Work Phone (810) 326-6356
Pager Number
Evening Phone:
4. Secondary QI: Steve Down
Work Phone (810) 326-6355
Pager Number
Evening Phone:
5. U.S. Coast Guard Sector Detroit
Detroit. 7:00 AM-3:30 PM Mon-Friday (313) 568-9580
After hours call the Coast Guard Group (313) 568-9524
Ask to have the MSO Duty Officer contacted.

The Duty Officer will determine the need for the facility to continue with notifications of local Emergency Management System numbers listed below.

6. Local Response Team: Marysville Fire Dept.
24 Hour Phone: (810) 364-6611
7. Marysville Fire Chief 911

2.0. - EMERGENCY RESPONSE ACTION PLAN (cont.)

8. St. Clair County Sheriff (810) 987-1710 or
Local Emergency Planning Committee (810) 985-8115
9. State Emergency Response Commission: (800) 292-4706 (24 Hour)
10. State Police 911
11. Michigan Department Natural Resources & Environment

Pollution Emergency Alerting System (PEAS) (800) 292-4706
12. Local Water Supply and Wastewater Treatment System: (810) 364-8460
(Marysville Water Filtration Plant)
13. Hospitals
Mercy (810) 985-1500
Port Huron (810) 987-5000
River District (810) 329-7111
14. Contractors Oil Spill Response Organization (OSRO)
Primary OSRO Marine Pollution Control (800) 521-8232
Inland Waters (800) 992-9118
Pros Services (810) 982-7271
15. Facility Coordinator: Shift Supervisor
24 Hour Phone: (810) 364-9390
16. Weather report Edison Intranet
17. Local evacuation will be handled by the Local Emergency Response Committee.
Local Radio station 1380 WPHM (810) 987-4100
Local television Channel 7 WXYZ (248) 827-7777

3. (b.) Where human health or the environment are threatened arrange for possible evacuation and notify government officials.

- Michigan State Police 911

2.0 - EMERGENCY RESPONSE ACTION PLAN (cont.)

- | | |
|---|----------------|
| ▪ Marysville Police and/or Fire Dept. | 911 |
| ▪ Marysville Fire Chief | 911 |
| ▪ State Emergency Response Commission | (800) 292-4706 |
| ▪ Marysville Water Filtration/Water Plant | (810) 364-8460 |
| ▪ Federal On-Scene Coordinator | (312) 886-4739 |

3. (c.) The following contractors have blanket contracts with Detroit Edison and have labor and equipment to assist in oil spill incidents.

- | | |
|---|--------------|
| Primary OSRO Marine Pollution Control Corp. | 800-521-8232 |
| Inland Waters, Inc. | 800 992 9118 |
| Pros Services. | 810 982-7271 |

Additional oil spill containment and cleanup materials are available from a Marine Pollution Control Corp. Roll-off box parked at Eugene Welding Company, 2420 Wells, Marysville, MI. Contact the Eugene Welding for access to this equipment.

- | | |
|---------------------------|----------------|
| xiii. Eugene Welding Co., | |
| Jerry Cunningham | (810) 364-7421 |

3.(d.) For aerial surveys of a spill call, Gateway Air Services, (989)775-3515.

3.(e.) Notify the following Company personnel as soon as possible (Ref. P.P.O. #222):

- Director, Environmental Protection: 235 7141. During off hours, call the next regular working day.
- Legal Department, Public Liability: 235-7710. During off hours, call (810) 235-8000.

4. If operations are stopped in response to a fire, explosion or release, then monitor for further leaks, pressure buildups inside vessels, gas generation, or ruptures of valves, pipes or other equipment.

5. Immediately after the emergency, provide for treating, storing or disposing of recovered waste, contaminated soil or surface water, or other material. Arrange for the cleanup and have emergency equipment clean and fit before continued operation.

6. The Regional Administrator (MDEQ) must be notified within 10 days with a written report and appropriate State and Local authorities must be notified prior to continued disposal that all cleanup is complete, and that emergency equipment is clean and fit. The Director, Environmental Protection, will make these notifications in writing within 10 days. This report must include:

- a. Name, address and telephone number of the owner of property and facility.

2.0 - EMERGENCY RESPONSE ACTION PLAN (cont.)

- b. Date, time and type of incident (e.g., fire, explosion)
- c. Name and quantity of material(s) involved
- d. The extent of injuries, if any, and an assessment of actual and potential hazards to human health or the environment, where this is possible.
- e. Estimated quantity and disposition of recovered material that resulted from the incident.

2.1.1 Emergency Notification Phone List

24 hour assistance is available from DTE Environmental Management and Resources at 313-268-1191 (cell) or 800-280-5867

EMERGENCY NOTIFICATION PHONE LIST

Facility Name: Marysville Terminal Facility

If the spill is into or will reach the river call a contractor first if they will be able to minimize the damages. Describe the extent of the spill and location. Additional information on notification requirements is covered in Power Plant Order 222. Document all notifications, internal, government, and contractors.

Date of Spill _____ **Location** _____

Time of Spill _____ **Person Discovering Spill** _____

Phone No. of Person Discovering Spill _____

ORGANIZATION	TIME CONTACTED	PERSON CONTACTED	BY: WHOM
National Response Center USCG: 1(800) 424-8802			
Oil Spill Response Organization, MPC Marine Pollution Control 1(313) 849-2333			
Primary QI: Joe Neruda Work: 1(810) 326-6356 Home: Cell: 1(313) 212-3949 Pager			
Secondary QI: Steve Down Work: 1(810) 326-6355 Home: Cell: 1(810) 434-1446 Pager:			

2.1.1 Emergency Notification Phone List (cont.)

ORGANIZATION	TIME CONTACTED	PERSON CONTACTED	BY: WHOM
U.S. Coast Guard Sector Detroit 1(313) 568-9580 After Hours:1-(313)-568-9560			
Local Response Team Marysville Fire Department 24 Hour call Phone # 911			
St. Clair County Emergency Management Division 1(810)-989-6965			
Federal On-Scene Coordinator 1(312) 886-4739			
State Police, Fire Marshall 1(810) 495-4677 or 911			
Marysville Water Filtration Plant 1(810) 364-8640 1(810) 364-6050			
MDNR&E Pollution Emergency Alerting system (PEAS) 1(800) 292-4706			
MDNR&E Warren, MI 1(586) 753-3792			

2.1.1 Emergency Notification Phone List (cont.)

ORGANIZATION	TIME CONTACTED	PERSON CONTACTED	BY: WHOM
Detroit Edison Environmental Management (EMR) 24 HR Cell: 1(313) 268-1191 Pager: 1(800)-280-5867			
Detroit Edison Legal Department 1(313) 235-7705			
Detroit Edison, Community & Governmental Affairs Regional Manager 1(586) 412-3206			
Detroit Edison, Media Relations 1(313)235-8807			
(Hospitals) Mercy (810) 985-1500 Port Huron (810) 987-5000 River District (810) 329-7111			

CLICK HERE FOR BLANK FORM

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SPILL OR RELEASE REPORT and NOTIFICATION FORM

NAME OF PERSON REPORTING SPILL			TELEPHONE NUMBER (provide area code)		
STREET ADDRESS		NAME OF FACILITY		SPILL LOCATION (Be specific)	
CITY	STATE MI	ZIP CODE		REPORT No.	
RELEASE DATA. Complete all applicable categories. Check all the boxes <input type="checkbox"/> that apply to the release. Provide the best available information regarding the release and its impacts. Attach additional pages if necessary.					
Date & Time of Release (if known)		Date & Time of Discovery		Duration of Release (if known)	
HOURS		HOURS		days hours minutes	
TYPE OF INCIDENT					
<input type="checkbox"/> Explosion <input type="checkbox"/> Pipe/valve leak or rupture					
<input type="checkbox"/> Fire <input type="checkbox"/> Vehicle accident					
<input type="checkbox"/> Leaking container <input type="checkbox"/> Other					
<input type="checkbox"/> Loading/unloading					
Material Released (Chemical Name) Estimated Quantity Release Rate (Gallons/Minute)					
<input type="checkbox"/> Yes <input type="checkbox"/> No					
<input type="checkbox"/> Yes <input type="checkbox"/> No					
<input type="checkbox"/> Yes <input type="checkbox"/> No					
<input type="checkbox"/> Yes <input type="checkbox"/> No					
Factors Contributing to Release:					
<input type="checkbox"/> Equipment failure <input type="checkbox"/> Training <input type="checkbox"/> Container <input type="checkbox"/> Ship <input type="checkbox"/> Truck/Van					
<input type="checkbox"/> Operator error <input type="checkbox"/> Weather conditions <input type="checkbox"/> Equipment <input type="checkbox"/> Tank <input type="checkbox"/> Other					
<input type="checkbox"/> Faulty process design <input type="checkbox"/> Other <input type="checkbox"/> Pipeline <input type="checkbox"/> Tanker					
Type of Material released:		Material Listed on:		Immediate Actions Taken:	
<input type="checkbox"/> Oil		<input type="checkbox"/> CERCLA list (40 CFR 302.4)		<input type="checkbox"/> Containment <input type="checkbox"/> Diversion of release to treatment	
<input type="checkbox"/> Flammable & Combustible Material		<input type="checkbox"/> Extremely Hazardous Substance-EPCRA Section 302 list (40 CFR 355)		<input type="checkbox"/> Dilution <input type="checkbox"/> Decontamination of persons or equipment	
<input type="checkbox"/> Waste/Solvent		<input type="checkbox"/> Table 1, R 324.2009, Michigan Part 5 Rules		<input type="checkbox"/> System shut down	
<input type="checkbox"/> Polluting Material		<input type="checkbox"/> RCRA listed hazardous waste		<input type="checkbox"/> Evacuation <input type="checkbox"/> Monitoring	
<input type="checkbox"/> Hazardous substance		<input type="checkbox"/> Other list		<input type="checkbox"/> Hazard removal <input type="checkbox"/> Other	
<input type="checkbox"/> Other				<input type="checkbox"/> Neutralization	
SPILL/RELEASE REACHED:					
<input type="checkbox"/> Surface waters (Include name of river, lake, drain, etc. involved):			Distance from spill location to surface water, in feet:		
<input type="checkbox"/> Drain connected to offsite sanitary sewer (Include name of wastewater treatment plant and/or street drain, if known):					
<input type="checkbox"/> Drain connected to storm sewer (Include name of drain or waterbody it discharges into, if known):					
<input type="checkbox"/> Groundwater (Include name of aquifer, if known):					
<input type="checkbox"/> Soils (include type e.g. clay, sand, loam, etc. if known):					
<input type="checkbox"/> Air					
<input type="checkbox"/> Other (explain):					
Note: A computer-generated copy of this form is available at the Environmental Management & Resources website, http://quest.dco.com/emr/					

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SPILL OR RELEASE REPORT and NOTIFICATION FORM

EXTENT OF INJURIES, IF ANY:

WAS ANYONE HOSPITALIZED ?

- ☐ Yes, Number Hospitalized:
☐ No

Describe the incident, the type of equipment involved in the release, how the volume of loss was determined, along with any resulting environmental damage caused by the release. Identify who immediately responded to the incident and who did further cleanup activities (Company employees or contractors - include cleanup company name, contact person, and telephone number),

Estimated quantity of any recovered materials and description of how those materials were managed (include disposal method if applicable):

Associated Health Risks and Precautions:

	Time Contacted	Date Contacted	Person Contacted	By Whom
<input type="checkbox"/> National Response Center (NRC) (800) 424-8802 Case No.:				
<input type="checkbox"/> PEAS: (800) 292-4706 Operator Number Assigned:				
DEQ District Office or Division (0900-1700 hrs.) (Voicemail not acceptable, call PEAS)				
<input type="checkbox"/> Jackson Ph: (517) 780-7690, Fax: (517) 780-7855				
<input type="checkbox"/> Saginaw Bay Ph: (989) 686-8025, Fax: (989) 684-9799				
<input type="checkbox"/> Southeast Michigan (Livonia) Ph: (734) 953-8905, Fax: (734) 953-0243				
<input type="checkbox"/> Underground Storage Tank Ph: (517) 335-7279, FAX: (517) 335-2245				
<input type="checkbox"/> Local Emergency Planning Committee (LEPC) (See phone numbers below)				
<input type="checkbox"/> Wastewater Treatment Plant Authority				
<input type="checkbox"/> Company Approved Pollution Control Firms MPC Ph (313) 849-2333 or (313) 849-2670 Rand Ph (734) 946-5090 Pros Ph (810) 982-7271				
<input type="checkbox"/> Environmental Management & Resources				
<input type="checkbox"/> Other				

Contacts are conducted by telephone only

Signature of Person Reporting Spill

☐

(Print Name) Check and Print Name if submitted Electronically

LEPCs: St. Clair County LEPC (810) 989 - 6965
Huron County LEPC (989) 269 - 6435

Wayne County LEPC (734) 942 - 5289
City of Detroit LEPC (313) 596 - 5196

Monroe County LEPC (734) 240 - 3135

Detroit Edison Written Follow-up Report Documentation

Regulatory Agency	Date Report Submitted	By Whom
MDEQ District Office or Division: <input type="checkbox"/> Jackson <input type="checkbox"/> Saginaw Bay <input type="checkbox"/> Southeast Michigan		
MDEQ - HWMD <input type="checkbox"/> Underground Storage Tank <input type="checkbox"/> Hazardous Waste		
Local Emergency Planning Committee (LEPC): <input type="checkbox"/> St. Clair County LEPC <input type="checkbox"/> Huron County LEPC <input type="checkbox"/> Wayne County LEPC <input type="checkbox"/> City of Detroit LEPC <input type="checkbox"/> Monroe County LEPC		
<input type="checkbox"/> State Emergency Response Committee (SERC)		
<input type="checkbox"/> EPA Region 5 Administrator		
<input type="checkbox"/> County Health Department		
<input type="checkbox"/> DTE Energy Legal		

Note: See Section 5.2 for follow-up report due times.

2.3.2 - RESPONSIBILITIES & AUTHORITY OF QI

- 1. Activate internal alarms and hazard communication systems to notify all facility personnel.**
- 2. Notify all response personnel, including contacting OSRO contractors.**
- 3. Identify character, exact source, amount, and extent of the release, and the other items needed for notification.**
- 4. Notify and provide necessary information to the appropriate Federal, State, and local authorities with designated response roles, including the National Response Center, State Emergency Response Commission, and Local Emergency Planning Committee.**
- 5. Assess the interaction of the spilled substance with water and/or other substances stored at the facility and notify personnel at the scene of the assessment.**
- 6. Assess the possible hazards to human health and the environment due to the release. This assessment must consider both the direct effects of the release (i.e. the effects of any toxic, irritating, or asphyxiating gases that may be generated, or the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat induced explosions.)**
- 7. Assess and implement prompt removal actions to contain and remove the substance released.**
- 8. Coordinate rescue and response actions as previously arranged with all response personnel.**
- 9. Direct cleanup activities until properly relieved of this responsibility.**
- 10. Obtain authority to immediately access company funding to initiate cleanup activities.**

2.3.3.1 ORGANIZATION & STRUCTURE, COMMAND AND CONTROL

The Primary and Secondary Qualified Individual (QI) is responsible for the implementation of this plan during an emergency oil spill incident. The QI will perform the duties outlined in section 2.3.2. The Primary QI will be responsible for reviewing this plan on regular intervals and revising this plan as necessary.

The Plant Production Manager is responsible for the overall daily operation of the Marysville Terminal Facility including efficient operation and maintenance of electrical, mechanical, and environmental equipment. This person is also responsible for Operations Personnel training and implementation of this Emergency Response Plan in the absence of the Environmental Compliance Specialist.

The Shift Supervisor or Delegate is Management's representative on duty and in charge of the hour-to-hour operation of the plant's equipment. This person is responsible for the implementation of this Emergency response Plan during the operation of his/her shift until relieved by a QI. In the event of an oil spill incident during the shift, he/she is responsible for initiating the plant's control, containment, cleanup, and report/notification procedures. This person will contact a QI.

Facility Operators are responsible for immediately reporting any oil spill they discover to the on-duty Shift Supervisor. In addition, the operators are responsible for maintaining good housekeeping practices and initiating repair work as deemed necessary. The increased possibility of an oil spill incident due to poorly operated or maintained equipment should always be well understood. Power Plant Order No. 62 "Plant Order Routine" outlines the procedure for which equipment repair can be initiated. This routine allows an operator, as he/she makes his/her inspection rounds, to initiate a repair order for any piece of equipment that requires work beyond his/her normal operating routine. He/she prepares a Work Order Request, which is sent to the Shift Supervisor, who, in turn, evaluates the request and establishes a priority for the group that is to perform the work. The work groups (Maintenance, Instrument Shop, etc.) use the Work Order Request for scheduling, receiving field feedback on equipment condition, equipment repair history, and spare parts history.

All employees are responsible for reporting any spill of oil, chemical, or other polluting material immediately to the Operations Shift Supervisor and taking appropriate actions to minimize the consequences of the spill.

On Scene Coordinator (OSC) is the federal official predesignated by U.S. Coast Guard or the EPA to coordinate and direct federal responses under Subpart D, or the official designated by the lead agency to coordinate and direct removal actions under Subpart E of the National Contingency Plan.

2.2.3.1 EQUIPMENT LIST TO MITIGATE AN AVERAGE MOST PROBABLE DISCHARGE

Marysville Power Plant has contracted a certified OSRO for the purpose of spill mitigation and cleanup. The OSRO is responsible to provide and deploy the equipment. The OSRO certification and annual deployment verification will be found in section 2.3.3.10. The type of equipment available to the OSRO is listed in section 7.3.1.2. The 1 hour response is provided by our OSRO via a local contractor (Pros Services).

2.3. RESPONSIBILITIES OF FACILITY PERSONNEL

Plant operating personnel will primarily respond in a defensive mode (i.e., isolating or stopping the source or spread of the spill). Aggressive activities (i.e. pressure plugging and patching) will generally be contracted as will cleanup and oil recovery actions. Specifically, plant personnel will, as needed:

- shutdown pumping systems
- operate valves to control flow
- deploy containment boom
- construct dikes, pits or lagoons to contain oil
- operate portable pumping systems
- apply adsorbent
- operate oily wastewater treatment systems
- notify spill cleanup organizations
- notify response agencies

If there is a leak on the wharf/trestle MOV-1 and MOV-62 will be closed and the barge operator will be instructed to stop pumping oil. If the operator can further isolate the leak by closing additional valves these will also be closed. For a leak on the barge hose or hose connection the pumping will be halted and MOV-62 will be closed. For a leak at the terminal tank farm pumping operation will be stopped to minimize the loss of product and MOV-1 will be closed.

For organization and structure of command and control refer to section 2.3.3.1.
For responsibilities and authority of Qualified Individual refer to section 2.3.2.

2.3.1 - RESPONSE TEAM

The response team will be made up of the Primary QI, Secondary QI, and our Primary OSRO for the Marysville Wharf and Terminal Facility Response Team. The responsibilities are listed in sections 2.3.2. and 2.3.3.

<i>Primary QI:</i>	<i>Title</i>	<i>Address</i>	<i>Work phone</i>	<i>Home phone</i>
Joseph Neruda	Environmental Compliance Specialist	816 Carolina Ave. Marysville, MI 48040	810 326-6356 Cell 313 212-3949	Pager

Response time would be 5 minutes from his home, and 20 minutes from work office at St. Clair Power Plant.

<i>Secondary QI:</i>	<i>Title</i>	<i>Address</i>	<i>Work Phone</i>	<i>Home Phone</i>
Steve Down	Principal Environmental Engineer	591 18 th Street Marysville, MI 48040	810 326-6355 Cell 810 434-1446	Pager

Response time would be 5 minutes from his home and 20 minutes from his other office at St. Clair Plant.

<i>Primary OSRO</i>	<i>Address</i>	<i>Phone</i>
Marine Pollution Control	8631 West Jefferson Detroit, MI 48209-2651	313 849-2333 800-521-8232

Level A OSRO Certified. Response time 45 minutes via subcontract with Pros Services In Port Huron, their yard is 10 minutes from the Terminal. Refer to section 2.3.3.10.

Fax Machine in office Marysville PP. ——— 810 364-2210

Other people may be called upon to perform certain specialized task listed in this section.

2.3.3.2 - ORGANIZATION & STRUCTURE - PUBLIC INFORMATION

Notification of a major spill will be made to the St. Clair Co. Emergency Planning Committee. An Emergency Operations Plan has been established for the Marysville Power Plant with this organization. Included in that plan are procedures for emergency public information.

Notification procedures outlined earlier also include notification of Detroit Edison Organizations. If necessary, Public Relations employees can be called to assist with dissemination of public bulletins and information.

2.3.3.3 - ORGANIZATION & STRUCTURE - SAFETY

All personnel are responsible for performing work in accordance with approved safety procedures. This is especially true in emergency response situations where people are called on to perform work outside their normal duties. Safety is the highest concern, risk taking or unsafe practices will not be tolerated, even in an emergency response situation. The QI or other Supervisors will enforce all safety rules.

If a prolonged response effect is needed, the plant safety coordinator or a representative from the Corporate Safety Organization can be called to assist the QI.

2.3.3.4 - LIAISON WITH GOVERNMENT AGENCIES

The QI is the primary liaison with governmental agencies including the Federal On-Scene during an oil spill event. Additional assistance may be provided by plant staff or corporate environmental organizations.

2.3.3.5 - ORGANIZATION & STRUCTURE - SPILL OPERATIONS

Spill operations are directed by the QI working closely with the Spill Operations, the Shift Supervisor and the plant chain of command. Should it become necessary to establish a Spill Operations Command Post, the QI will designate an appropriate location.

2.3.3.6 - ORGANIZATION & STRUCTURE - PLANNING

Short term emergency response activities will be directed by the QI. Long term planning for oil spill recovery measures will be determined by the Plant Staff, and the QI. Assistance can be obtained from contract oil spill response organizations or corporate organizations.

2.3.3.7 - ORGANIZATION & STRUCTURE - LOGISTICS SUPPORT

Plant personnel are available to assist the QI with support operations including administrative support, material ordering/transportation, skilled trades support, and security/communications.

2.3.3.8 - ORGANIZATION & STRUCTURE - FINANCE

The Detroit Edison Co. has many contracts in place with Oil Spill Response Organizations (OSRO) on an open or "blanket" basis (see section 2.3.3.10). This allows quick response without the need to establish financial arrangements. Various other blanket contracts for key supplies and equipment are also in place.

2.3.3.9 – FACILITY EVACUATION

Evacuation procedures for facility personnel are outlined in Marysville Power Plant Order M-7. A copy of Plant Order M-7 can be found in the back of Section (7.5).

The evacuation of the local community will be conducted by the local Emergency Planning Committee or Marysville Fire Department. The phone number for these organizations is 911 and can be found on the notification phone list in Section 2.0

Evacuation procedures are also covered in Section 7.5.5. of this manual.

The only hazardous material at the terminal facility is stored oil. The hazards are listed on the MSDS sheets in section 7.1.4. Flow direction is shown on drawing in section 7.5.9. Prevailing wind direction is south western at 0-10 MPH. There are no tides, special currents or wave conditions. The emergency response personnel will enter from Gratiot Avenue. Evacuation routes are shown on drawing. Transportation of injured personnel to a medical facility would be North on Gratiot to Mercy Hospital, approximately 2 miles. Alarms and phones are in the terminal control room. Centralized check-in will be performed at the guard house. Mitigation command center location could be Plant offices, terminal control room, a city or county facility depending on size of response.

2.3.3.10 - PRIMARY OIL SPILL RESPONSE ORGANIZATION (OSRO)

The Equipment Deployment Certifications and equipment list for Detroit Edison's OSROs are on the following pages thru the end of this section. Marine Pollution Control (MPC) is our primary OSRO, they have assured us they are a class E and can meet the 1 hour response via a subcontractor in our area. We can also access MPC equipment stored at Eugene Welding Facility in Marysville. Only MPC's equipment is listed in this manual since they are a level A OSRO

7.5 - FACILITY SAFETY AND HEALTH PLAN

7.5.1 PRE-EMERGENCY PLANNING & COORDINATION WITH OUTSIDE PARTIES

All Detroit Edison employees at Marysville Terminal Facility shall receive, as a minimum, Hazwopper Level 1 Emergency Response (First Responder) Awareness training. In addition, at least one key employee, such as a Shift Supervisor or Environmental Compliance Specialist will be a certified On Scene Incident Commander or Qualified Individual.

The Shift Supervisor has the ultimate responsibility of declaring a hazardous material emergency. The Environmental Compliance Specialist will assist the On-Scene Incident Commander and if necessary assume the role of the On-Scene Incident Commander if the Shift Supervisor is unable to do so.

The On-Scene Incident Commander has the authority to arrange for outside hazmat team assistance. A complete list of names and phone numbers for outside contractors can be found in sections 2.1.3 or 7.2.

Where human health and/or environments are threatened, arrange for possible evacuation and/or notification of governmental officials. A complete list of numbers is listed in sections 2.1.3 or 7.2.

Contacts from outside media organizations should be directed to the Detroit Edison Corporate Communications office at 1-313-235-8807.

7.5.2 PERSONNEL ROLES, LINES OF AUTHORITY, TRAINING AND COMMUNICATIONS

7.5.2.1 PERSONNEL ROLES

The Shift Supervisor or Environmental Compliance Specialist will act as the On-Scene Incident commander. All other personnel will provide assistance as needed and directed. Detroit Edison personnel with Awareness Level training only should NOT directly engage a hazardous material spill.

7.5.2.2 LINES OF AUTHORITY

Chain of command for Marysville Power Plant can be found in Section 2.3.3.1. of this manual.

V FIRE BRIGADE

Marysville PP is staffed 7/24. Normally there will be two Operators on duty Monday through Friday, and one Operator covering weekends and Holidays.

Members of the fire brigade performing fire fighting duties will utilize hand held, portable fire extinguishers.

All members of the fire brigade are to have a two-way radio in their possession.

If possible, or practical, a **Pre Job Brief** will be held prior to deployment.

Members of the plant fire brigade are trained and intended to function as incipient stage fire responders only. Refer to "MIOSHA General Industry Safety Standard, Part 73, Fire Brigades"

"Incipient stage fire" means a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, class II standpipe, small hose systems 1 1/2" up to 125 gpm, and it does not require evasive actions, the donning of self contained breathing apparatus, or protective clothing.

Annual training for members of the plant fire brigade is the responsibility of the Plant Shift Supervisor. All members will receive annual training and education prior to fighting fire to ensure that they are capable of performing these duties in a safe and competent manner that does not present a hazard to themselves or others.

VI DEPLOYMENT OF THE FIRE BRIGADE

Per Power Plant Order 54, the Operating Authority must be notified immediately whenever a fire is discovered. Upon notification of a fire, the Operating Authority shall notify the local fire department (911) before responding to the fire. This is necessary because incipient stage fires can rapidly develop into structural stage fires.

In the event an Operator is working alone, the on-call Shift Supervisor or Work Leader must also be notified.

In the event a fire occurs, it's within the incipient stage, and can safely be extinguished, one Operator can respond. If the fire is beyond incipient stage, wait for outside help.

The local fire and police department have a key to the South Plant gate. Unless directed elsewhere, they will report to the front of the administrative building for further instructions.

VI DEPLOYMENT OF THE FIRE BRIGADE CONT'D

Unless prevented by safety issues, it is the responsibility of the Plant Operators to ensure adequate water supply and pressure (100psi) is available to the fire brigade/fire department. If water for fire fighting is required in the boiler house, open the two isolation valves located at the entrance doors to the Mill Room on the Turbine side Mezz. floor.

VII SUPPORT FUNCTIONS

Operators may be called upon to perform functions under the direction of the Incident Commander. These support functions may include:

- Ensure the building is evacuated and all personnel are accounted for
- Ensure the Fire Department is directed to the fire
- Ensure the logistical needs of the responders are met
- Perform first aid within the scope of their training
- Identify potential hazards that responders need to be aware of

VII NOTIFICATION PROCEDURES

The following is a sequential account of how a fire is to be reported and the assigned responsibilities concerning notification.

- The person discovering an incident will notify the Shift Operating Authority by phone at ext. 250 or by two-way radio. If notification is by two-way radio, ensure confirmation of your transmission is received.
- The person should report the exact location, type, and extent of the incident.
- The Operating Authority, upon receiving notification, will immediately contact the local Fire/Police Department (911) on an outside phone line. Unless directed otherwise, the Fire Department will access through the South Plant gate using their key. They will report to the Administrative building.
- The Operating Authority will notify St. Clair Power Plant Security of the incident. Request assistance, if needed.

During off hours, the Operating Authority will notify plant staff of the incident. In the event of a major fire, injury to personnel, or Plant evacuation notify the Fossil Gen "on call" Duty Person. Refer PPO #161.

Non-Operating personnel on site (Maintenance, Instrument, contractors, etc.) will be contacted face to face or by two-way radio with instructions on where to report.

VIII ELEVATORS

No one is to use the elevators during a plant emergency unless authorized to do so by the Plant Operating Authority.

IX FOUL WEATHER EMERGENCIES

In the event of severe foul weather all personnel on site will be notified, via two-way radio on where to report. This area will normally be the hallway in the Admin. Office Basement.

X BOMB THREATS

Any person receiving a bomb threat over the plant telephone should gather as much information as possible from the caller.

- Time of call
- Tone and type of voice (male/female, old/young)
- Exact words of person calling
- Specifics about the device (type, time of detonation, etc.)
- Any background noise

Employee receiving this type of call should immediately notify the Operating Authority.

The Operating Authority will:

- Notify the Supervisor and/or Work Leader. If incident is on the back-shifts, call at home.
- Notify Security at St. Clair Power Plant
- Call local police at 911

If the location of the bomb or potential bomb is known, all personnel should evacuate that area immediately.

If a plant evacuation is deemed necessary, follow the guidelines in section XII of this Plant Order.

XI CHEMICAL SPILLS

Anyone discovering a chemical spill should stay upwind of the area and immediately report the spill to the Operating Authority at 235 or by two way radio. If possible, and their safety is not jeopardized, the person discovering the spill should not leave the scene (other than to report the spill) until the area can be roped off. This person may act as a Safety Person until relieved by a qualified individual.

XI CHEMICAL SPILLS CONT'D

Instructions to be followed in the event of a chemical spill or emergency are listed in the Marysville Power Plant "Best Management Practices" program (BMP). This program is located in the Marysville Power Plant Environmental Response Manual.

In the event of a chemical spill the Incident Commander will direct the responders on which procedures to follow.

XII PLANT EVACUATION PROCEDURES

In the event it is deemed necessary to evacuate the Plant, the following procedures will be followed.

- Notification of evacuation to all personnel on site is given by face to face or two way radio communication.
- Personnel on the upper floors of the plant are to use the stairways to evacuate. Do not use the elevators.
- All non-essential personnel will evacuate the plant and congregate in front of the Clubhouse.
- If possible, one Operator will remain in the Admin. Building Security Control Center.
- It is the responsibility of the Operating Authority to ensure all personnel are accounted for at the designated assembly area. In the event someone is missing, notify the Incident Commander.
- Evacuated personnel at the assembly area are to follow the directions of the Plant Operating Authority.
- If evacuation further from the plant is required, it will be ordered by the Incident Commander.
- No one is to leave the evacuation assembly area without the permission of the Incident Commander.
- An "all clear" notice will be given by face to face or two way radio communication.



Updated February 12, 2007

MPC EQUIPMENT AND MATERIALS LIST

Vacuum Tankers & Vacuum Trucks

VT-452	4,500 gal 1988 Huber Diesel, mild steel, hoist body, dump door, coded DOT MC 307, 312
VT-453	5,500 gal mild steel, coded DOT 307, 312
VT-455	5,000 gal 1999 Cusco, carbon steel, hoist body, dump door, coded DOT 412
VT-458	6,000 gal 1993 Brenner Diesel, stainless steel, coded DOT 407, 412
#2	2,000 gal International Vacuum truck, coded DOT 306, 307, 312
#10	3,300 gal 1987 International Vacuum truck, coded DOT 306, 307, 312
#15	2,000 gal International Vacuum truck, coded DOT 306, 307, 312
#17	3,500 gal 1992 Ford/Cusco Turbo-Vacuum unit
#20	3,300 gal 1989 Ford Vacuum truck, coded DOT 306, 307, 312
#26	3,000 gal 2002 Sterling Vacuum, coded 312
#29	3,500 gal 1995 Ford/Cusco Turbo-Vacuum unit
#45	2,000 gal 1999 Sterling/Cusco Stainless Steel Vacuum Truck, coded DOT
#48	2,000 gal 1990 Ford Vacuum truck, coded DOT 306, 307, 312

Tanker Trailers

T-454	7,000 gal stainless steel, coded DOT 307, 312
T-459	6,800 gal stainless steel, coded DOT 307

Trucks/Trailers

1	Vactor 1200 Jet Rodder
2	Hazardous Material Response Trailers (40' van with inventory of sorbents, booms, recovery barrels, command and communications center)
1	12' Stake (#30)
1	12' Stake with lift gate (#31)
1	3500 HD Pickup with lift gate (#37)
1	20' Stake with lift gate (#56)
2	Tri-axle Roll off Trailers
20	Operations Vehicles
1	All-terrain vehicles
2	Flatbeds with tarp covers
2	Emergency Air Supply Vans
4	Tractors (3 equipped with wet systems PTO)
10	20-yard roll-off boxes
2	Roll-on/roll-off trailers
1	30 yard oil water separator
3	20 yard oil water separator
1	20 yard vacuum box
1	46' Drop-deck-Side board kit & tarp (T-11)



- 1 42' Drop-deck-Side board kit & tarp (T-14)
- 1 43' Drop-deck w/pump gear (T-15)
- 1 Ford pick-up with Tommy lift (#16)
- 1 Chevy Pickup with Tommy lift (#47)
- 2 Bobcat (sweeper, blade, bucket, backhoe attachments)

Skimmers

ACME Model VSV-39T
 Snyder Skimmer (2)
 Oleo Skimmer (2)
 Oil Mop oleophilic rope - 11 GPM
 Slick Bar "Slurp" vacuum
 KMA Skimmer Collar (3)
 Skimmer Plate - 6" (10) and 4" (3)
 Drum skimmer - 30-gpm (2)
 Drum Skimmer - 20-gpm (1)

BUDA I Work Barge

36' x 12'
 Capable of transport by air, rail or trailer
 2-200 HP outboards
 Debris catcher
 12' x 20' Debris or boom hauling space
 Marine radio

BUDA II Vacuum Barge

40' x 10', Diesel self-propelled
 Capable of transport by air, rail or trailer
 Skimming capability of 3,000 gallons per hour with 1" depth of product
 5,000 gallon storage capacity
 1000 CFM Blower
 Two skimmer adapters
 15kw diesel generator
 10' x 8' debris hauling space and debris catcher
 Marine radio

Outboard Utility Boats

27' Command Ship *Red Anchor II*, equipped with marine radio (1)
 24' Aluminum Rapid-Response Boat, 180HP
 20' Aluminum work boat, 140 hp
 19' Four Winns Transport Craft

17' Boom boat with Marine radios and outboard motors (1)



13' Boom boat with Marine radios and outboard motors (1)

High Capacity Pumping Systems

Six Complete Systems located in Detroit, Michigan. These high capacity submersible pump systems are effective for use in emergency transfers, dewatering, in addition to sewer and water system bypasses. They can be used with all liquid petroleum products, including low flash and highly viscous materials. Special pumps are also available for caustics and acids. Each system contains;

Six Cylinder Air or Water Cooled Diesel Power Pack

250' Cargo Hose

250' Hydraulic Hose

Submersible Hydraulically Powered Pumps (7 types)

Type 1 - KMA 333 stainless steel, chemical/viscous material

Type 2 - 3,000 GPM at 80' head (TK-6)

Type 3 - NIAI Bronze, Chemical/viscous material, 2250 GPM at 140' head, Butterworth access (CCN-150)

Type 4 - Auger type for viscous material (latex, molasses, etc.) 660 GPM at 165' head (Marflex)

Type 5 - Stainless Steel 600 GPM at 80' head (TK-4)

Type 6 - Stainless Steel 1,200 GPM at 100' head (TK-5)

Type 7 - 6" Submersible, 1,000 GPM at 65' head (Bryon Jackson)

Type 8 - 6" Submersible, double stage, 1050 GPM at 65' head

Fire fighting pump (1): portable (2 or 3) gun monitor, Foam, spray and straight stream

A total of nineteen (19) additional systems are located in the following cities (map attached):

Boston, MA (1)

Houston, TX (1)

Seattle, WA (1)

South Point, OH (1)

New York Harbor (1)

San Juan, Puerto Rico (1)

Baltimore, MD (1)

New Orleans, LA (1)

Hong Kong (1)

Savannah, GA (1)

Tampa, Florida (1)

Ketchikan, Alaska (1)

Long Beach, CA (1)

San Francisco, CA (1)

London, U.K. (1)

Nikiski (Anchorage), AK (1)

Honolulu, HI (1)

Singapore (1)

All pump systems are ready for immediate deployment to any point in the world.

MPC has stationed additional spill response equipment at most of the locations listed above. The spill response equipment that has been added to each location includes pneumatic marine fenders (5' x 10') and dual nozzle fire monitors.

MPC maintains one portable hydraulically driven "Hot-Tap" unit capable of making safe penetrations on steel plate and pipe. The "Hot-Tap" unit is deliverable with necessary valves and cutting tools to make 3", 4" or 6" taps while installing valves over access point.

Communications Equipment

Telephone (313) 849-2333 and (800) 521-8232

Facsimile (313) 849-1623



2-way business band base station (1)
Digital 2-way communications devices (21)
Mobile 2-way business band radios (21)
Portable 2-way radios (8)
Marine radios (5), and Mobile Marine radios (6)
IP petroleum portable base station, call sign WNGS 717 (1)
Iridium Satellite Phone (1)

Auxiliary Equipment

Vac-Pac (a portable dust-free scarifier used for PCB decontamination)
Fork lifts (2)
175 CFM air compressor (1)
32' Mobile office trailer
13,000 psi waterblaster (mounted in a box van truck)
Sewer Jet attachments for waterblaster
Mobile Lighting units, 5,000 watts, 16' and 26' towers
Tripod, 3,000 lbs
Miscellaneous portable generators (3)
Portable drum crusher (SAF-T-CRUSH) (2)
Field lab-sampling equipment
Steam Jennies (2)
1,800 psi power washer
Electric (110V) pressure washer, 2.5 gpm
Mobile power washer (250 gal.) (1)
Cutting torches
Air chippers and hammers
Discharge mill hoses, assorted sizes
Suction hoses, assorted sizes
Grip holsts, Chain falls
Non-sparking tools, Underwater tools
Cuno filtering system (5 micron)
Recovery drums & handling equipment
Stainless steel air driven barrel pump (1)
2" air diaphragm pump (2)
3" air diaphragm pump (2)
4" trash pump

Auxiliary Services

Organic chemist
Inorganic chemist
Consultant for spill cleanups
Chemist
Groundwater Monitoring Wells

Site Assessments
Site Remediation plans



Staff Geologists

Groundwater Decontamination Equipment

Sampling pumps (air operated) with associated equipment
Surveying transit and tripod
Liquid Interface probes for well depth measurement
Photolionization meters
Various bailers and sampling equipment
Stripping towers (site specific)
Carbon purification units (site specific)
Electric submersible pumps explosion proof 5hp to 1hp
Gorman Rupp centrifugal explosion proof pumps
Gorman Rupp centrifugal pumps for caustics and acids
ORS - Scavenger systems
ORS - Ground water pumping systems for shallow wells
NEPCCO - Petro & Hydro purge systems for deep wells
Entac- Probe scavenger & hydro pump for deep well system
550-gallon product recovery tanks (4)
Various size well screens kept in stock
1,000 skid tank
Hermit Data logger (pump tests)
Water table depression system
Hand vacuum sample filtering system.

Safety Equipment

2 Field Office Trailers w/computer, radio, & Fax Facilities
Water Trailer
2 Pressure wash decontamination stations - 250 gal. water
2 portable eyewash stations
Comset communication set for Level A suits
3 Lamb air movers
2 positive/negative air tank blowers
1 non-sparking (Kevlar) Miller Personnel Extraction System
Personnel Extraction System (steel cable) (3)
Non-sparking hand tools, shovels, rakes, & clean up equipment
2 Acid King Level A Suits
2 MSA Chempruf Level A Suits
Dräger Pump Sample Kit (w/various hazmat tubes)
Supply of Lifeguard disposable Level A Hazmat responder suits
Supply of Saranex Level B suits
Supply of Frontline Level B suits

Supply of polyethylene tyvek suits
Supply of tyvek suits
Supply of viton, neoprene, silver shield, butyl, and PVC gloves



Hard hats, face shields, eye protection, first aid kits, first aid/CPR trained personnel

1 pH meter

6 O₂/LEL meters

3 Hnu meters with strip charts

2 Micro-tip Photovac photolionization meters

1 OVM meter

2 Jerome mercury vapor analyzers

HCN-Monitox - H2S Monitox - HNU meter with strip chart (10.2 eV probe)

40 MSA Comfo II cartridge respirators

30 MSA Ultra Twin Full Face cartridge respirators

72 boxes (minimum in stock) MSA GMC-H Combination organic vapor/acid gas cartridges

72 boxes (minimum in stock) MSA Mersorb Indicator mercury vapor cartridges

8 MSA Type-N canister gas masks

16 (minimum in stock) MSA Window canisters

100 3M disposable air purifying respirators

12 self contained breathing apparatus (SCBA) units:

2200 psi Ultralite (1)

2200 psi Ultralite with dual purpose regulator (1)

Custom 4500 psi (4)

Custom 4500 psi with dual purpose regulator (4)

2200 psi 5 minute escape bottles (2)

25 pressure demand air masks

18 airline belt regulators

9 high pressure bottle regulators

1000' neoprene airline

Breathing air compressor

Air Supply Trailer #1 (cascade system):

Ten 2200 psi breathing air cylinders (removable)

Seven man working capacity

4 to 6 hours of air time

Air Supply Trailer #2:

Six 4500 psi breathing air cylinders

Two 2200 psi breathing air cylinders

6 back up 2200 psi breathing air cylinders

4 back up 2200 psi SCBA bottles

3 back up 4500 psi SCBA bottles

Boom

5,000' of ACME "O.K. Corral" containment boom

Flotation Diameter: 8"

Skirt Length: 12"

Size/Length: 100' sections

Emergency Response Trailers

2,000' of ACME "O.K. Corral" containment boom



Flotation Diameter: 6"
 Skirt Length: 6" & 12"
 Size/Length: 50' and 100' sections

Including booms, anchoring equipment, misc. boom equipment, sorbent material, jon boat and generator
 1,000' of ACME "O.K. Corral" containment boom

Flotation Diameter: 6"
 Skirt Length: 12"
 Size/Length: 100' sections

Including booms, anchoring equipment, misc. boom equipment, jon boat, and skimmer.

Marine Pollution Control (MPC) is a distributor of ACME and Slickbar boom. Truckload quantities are readily available.

Sorbent Supplier of: (3M or SPC)

<u>Type</u>	<u>Quantity in stock</u>
8" Boom	200 bales (8,000')
5" Boom	50 bales
8" Fiberperl boom	75 boom's (750')
Rolls	100 rolls
Pads	400 bales
Pillows	20 bales
Sweeps	20 bales

Marine Pollution Control is a distributor of 3M, SPC and Fiberperl sorbents. Truck load quantities are readily available. In addition, MPC has three (3) twenty (20) foot spill response containers stationed around the Great Lakes area. The contents of each container are as follows:

- a) 1,000 ft of 6" x 12" containment boom
- b) 1,000 ft of sorbent boom
- c) 2 bales of type 156 sorbent pads
- d) 2 bales of sorbent sweep
- e) 1 Bonidco overpack
- f) 1 class "C" drum (55 gallon capacity)
- g) 6 stakes
- h) 1 sledge hammer
- i) 1,200 ft of rope
- j) 12 garbage bags
- k) 2 bags of sorb-all
- l) 6 anchors
- m) 8 floats



The above referenced spill response containers are positioned in the following cities:

Marysville (Port Huron), Michigan

Sault Ste. Marie, Michigan

Alpena, Michigan

Distributor of:

Fiberperl sorbents: booms, bags, pillows

Oil dispersant

ACME boom

SPC sorbents

Silkwik sorbents

ACME oil skimmers

Slickbar products

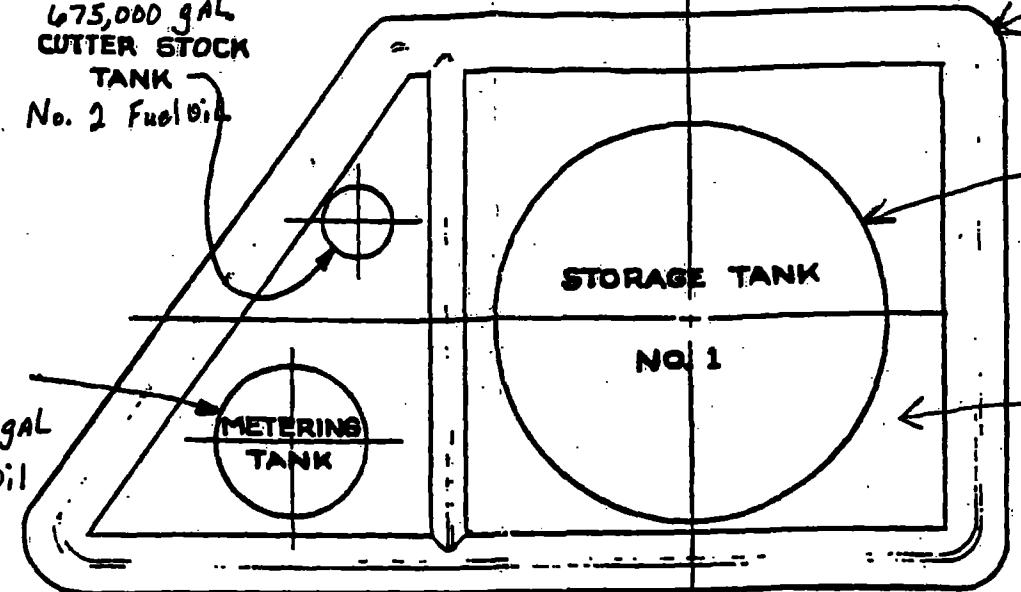
ENPAC Environmental containment products

Note: It is not normal operating practice to store any oil at the terminal, except during off-loading periods.

A 001
675,000 gal
CUTTER STOCK
TANK
No. 2 Fuel Oil

A 002
3,200,000 gal
Residual oil
4-6

A 003
17,000,000 gal
Residual oil
4-6
Containment
19,650,000
GAL



METERING STATION

SCP - SOUTH CONTROL PANEL

NCP - NORTH CONTROL PANEL

TO GREENWOOD

Future connection

FOAM HOUSE

CONTROL BUILDING

PANELS

- CMP - CUSTOM METERING PANEL
- MCP - MECHANICAL CONTROL PANEL
- PRP - PROCESS RECORDER PANEL
- ECP - ELECTRICAL CONTROL PANEL
- LDP - LEAK DETECTION PANEL
- FPP - FIRE PROTECTION PANEL

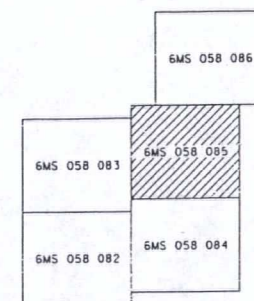
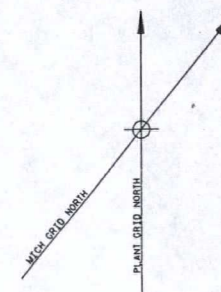
ST. CLAIR RIVER

WHARF BUILDING
WCP - WHARF CONTROL PANEL

MARYSVILLE TERMINAL FACILITIES
CONTROL PANELS - LOCATION
CAI SKETCH FSD-A

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed [Signature]

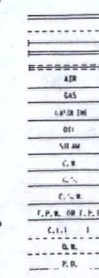
MICHAEL BAKER JR., INC.
CONSULTING ENGINEERS
BEAVER, PENNSYLVANIA



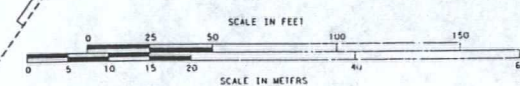
PLOT PLAN

CODE

DUCT RUNS
BURIED CABLE
SEWERS & DRAINS
CONCRETE ENCASED
AIR
GAS
GASOLINE
OIL
STEAM
CITY WATER
CITY SER WATER
CITY SER WATER
FIRE PROTECTION
CHEMICAL LINES
OILY WASTE
POSITION DOUBTFUL



Primary Evacuation Route
Secondary Evacuation Route

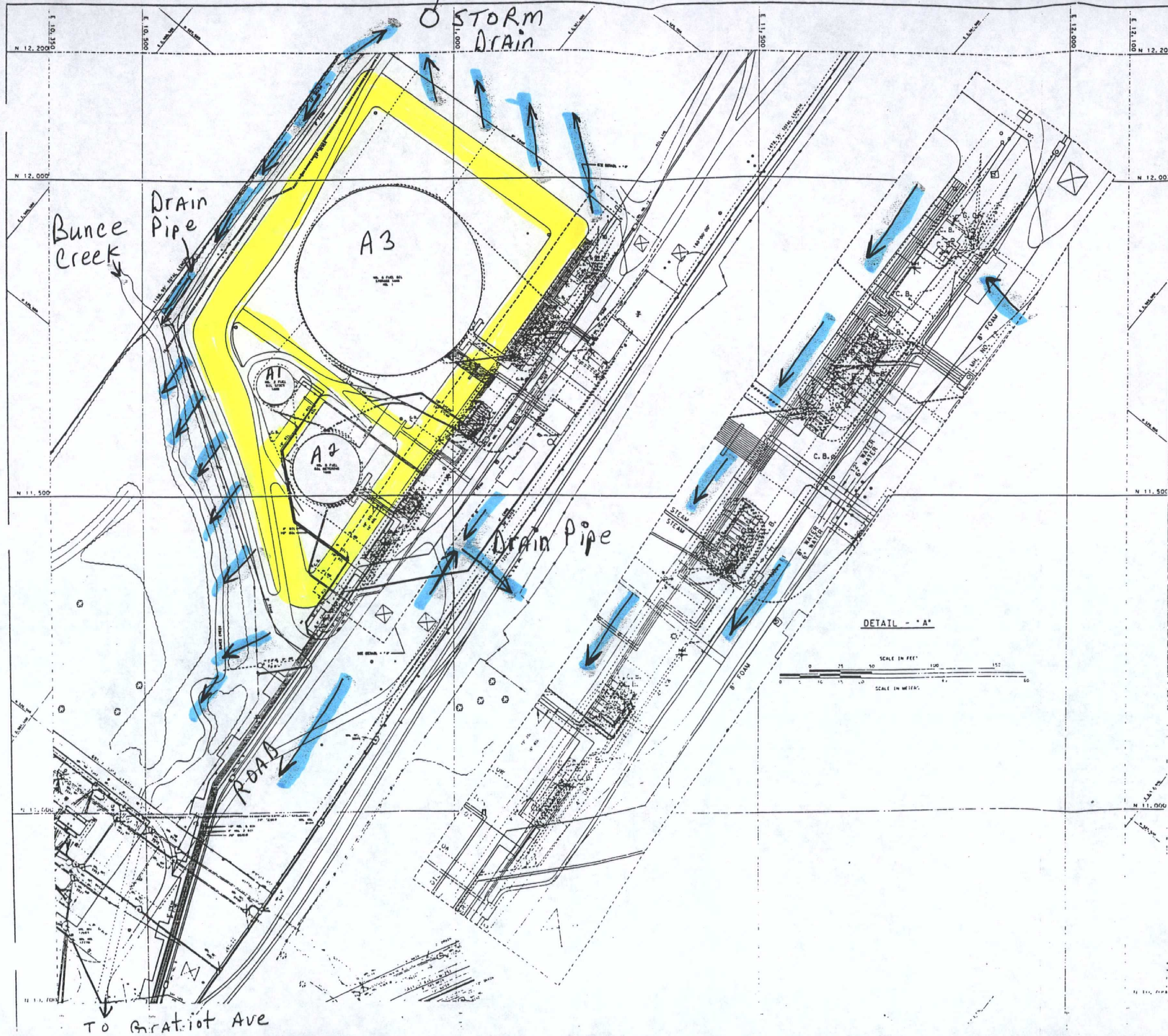


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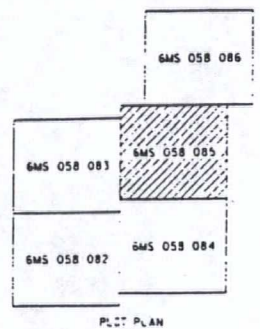
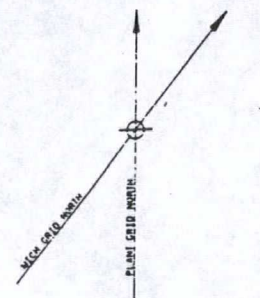
To Gratiot Ave

Examined by the U.S.
Captain of the Port
Date
Signed

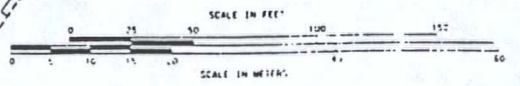
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MICHAEL BAKER, JR., INC.
CONSULTING ENGINEERS
REAR, PENNSYLVANIA

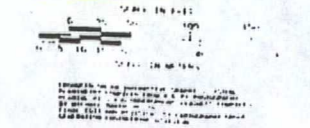


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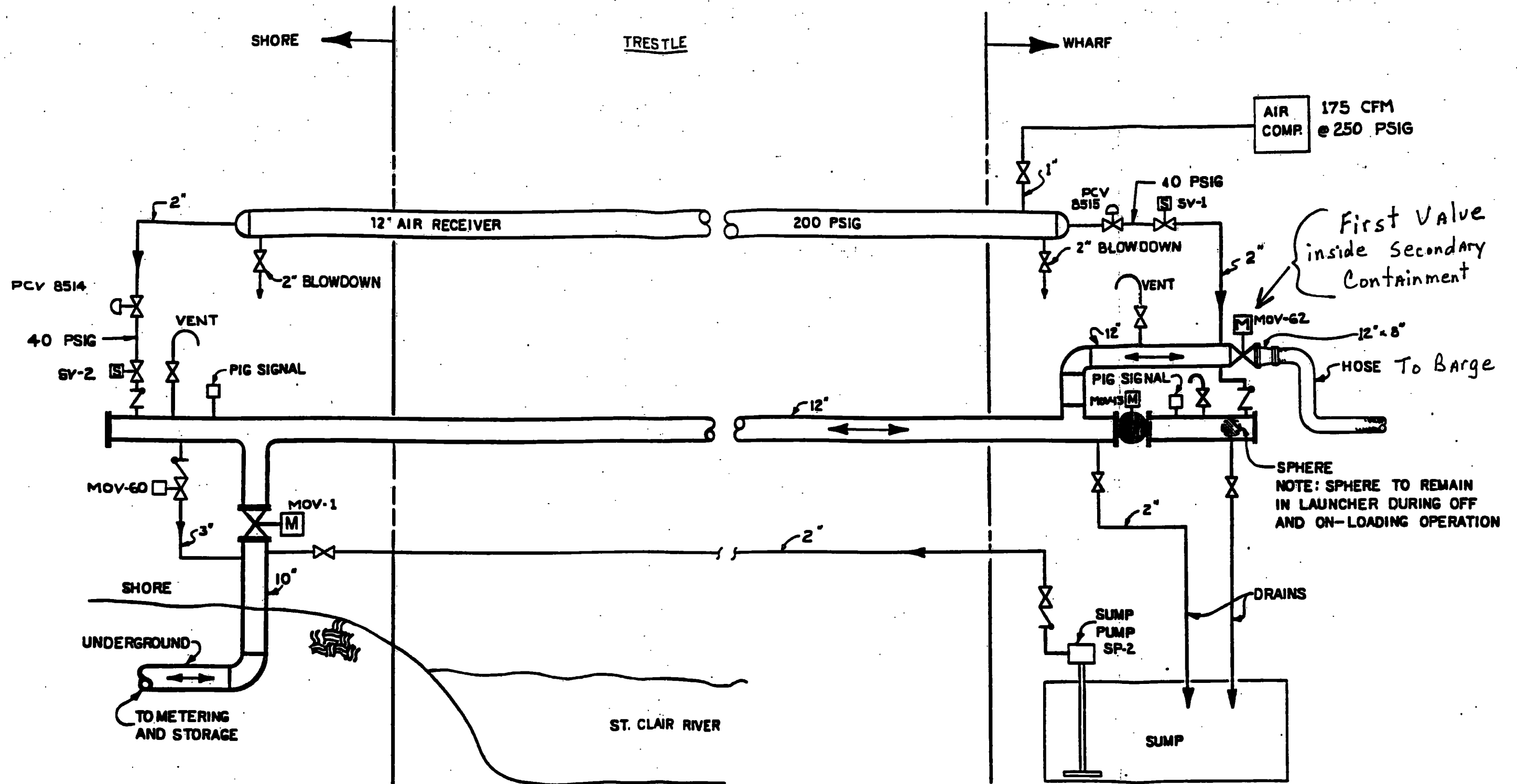


CODE	
DUCT RUNS	=====
BURIED CABLE	-----
SEWERS & DRAINS	-----
CONCRETE ENCASED	=====
AIR	=====
GAS	=====
GASOLINE	=====
OIL	=====
STEAM	=====
CITY WATER	=====
GEN SER WATER	=====
CITY SER WATER	=====
FIRE PROTECTION	=====
CHEMICAL LINES	=====
OILY WASTE	=====
POSITION DOUBTFUL	=====

Site Drainage
Berm



Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed [Signature]



LEGEND

MOTORIZED VALVE

GATE VALVE

BALL VALVE

CHECK VALVE

SOLENOID VALVE

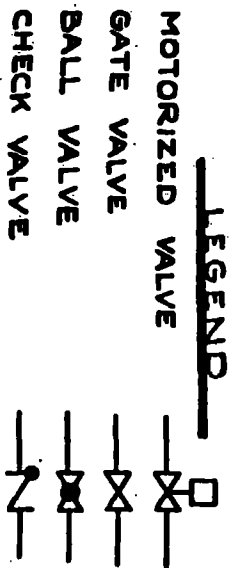
PRESSURE REGULATOR

VENT

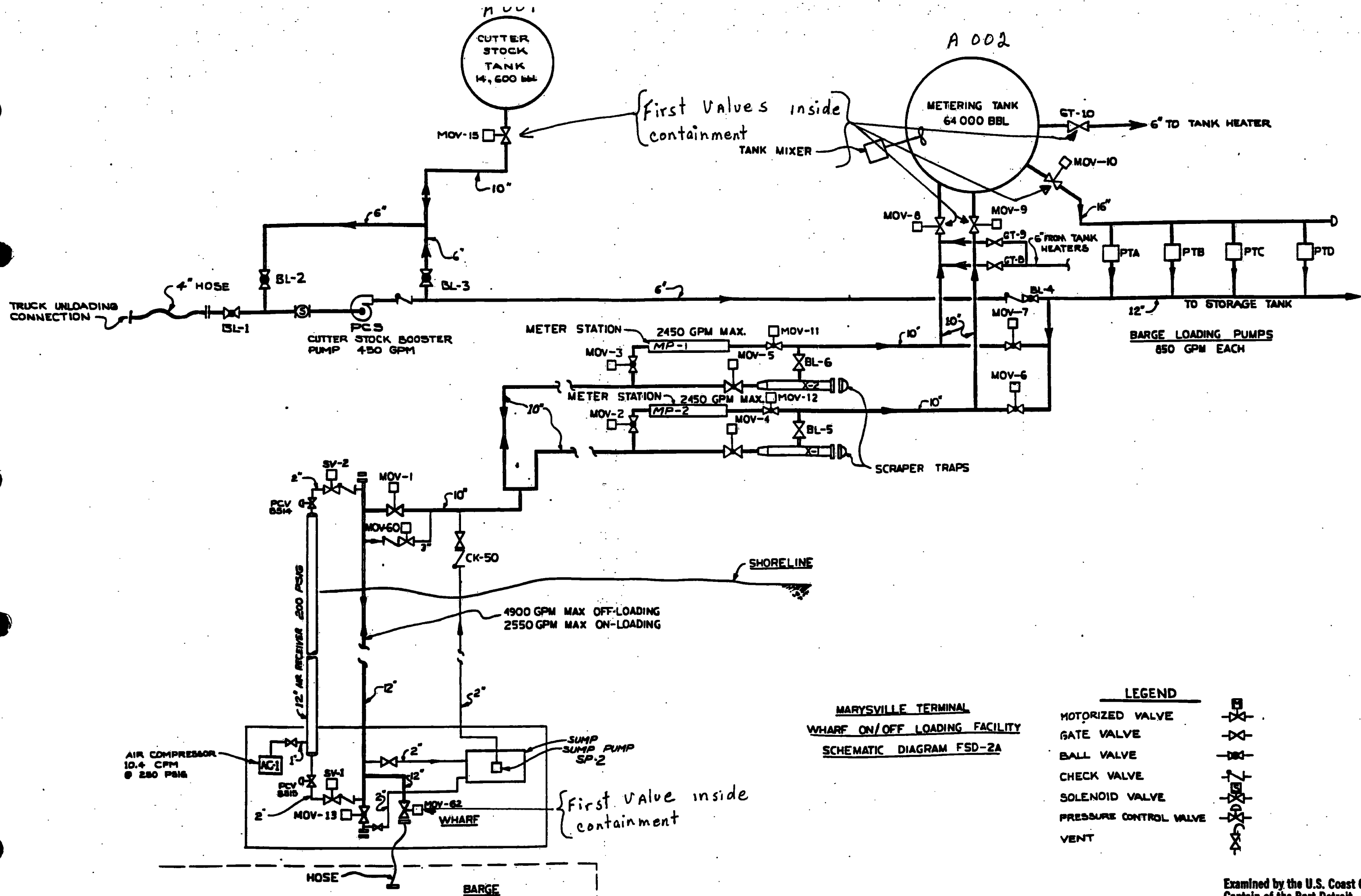


MARYSVILLE TERMINAL
TRESTLE PIPELINE EVACUATION SYSTEM
SCHEMATIC DIAGRAM No. FSD-2B

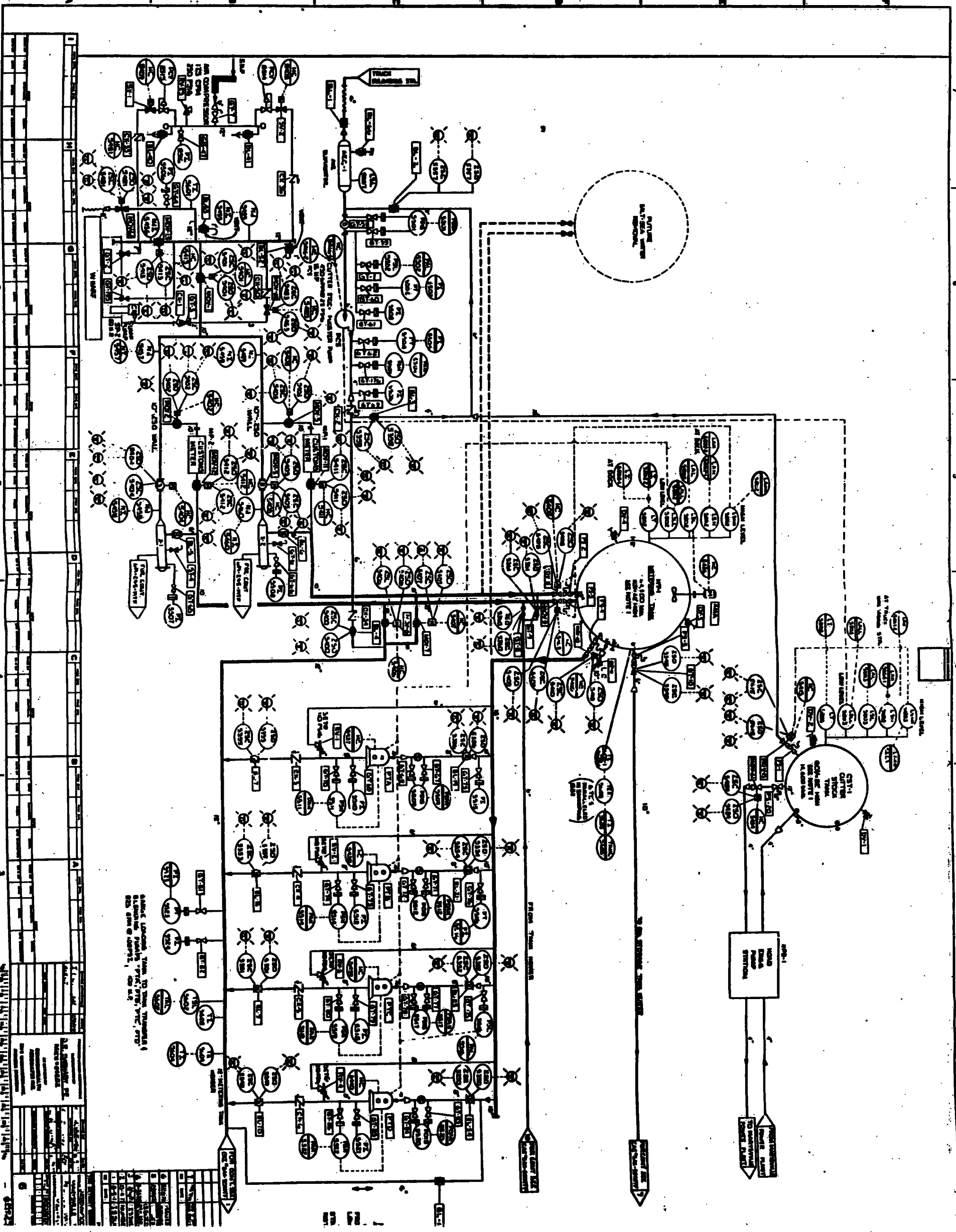
Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed *[Signature]*



TRANSFER TO STORAGE SCHEMATIC DIAGRAM FSD-3

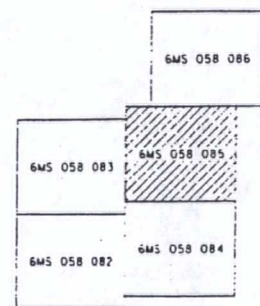
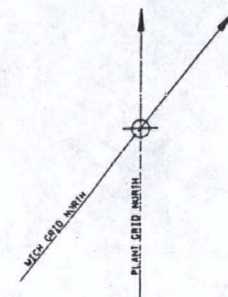


Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed *[Signature]*



Examined by the U.S. Coast Guard
 Captain of the Port Detroit
 Date _____
 Signed DRB

MICHAEL BAKER, JR., INC.
CONSULTING ENGINEERS
BEAVER, PENNSYLVANIA



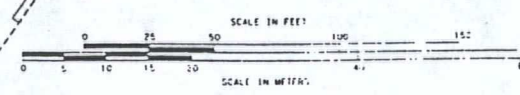
PLOT PLAN

CODE

DUCT RUNS	----
BURIED CABLE	-----
SEWERS & DRAINS	=====
CONCRETE ENCASED	=====
ATR	----
GAS	----
GASOLINE	----
OIL	----
STEAM	----
CITY WATER	----
GEN SER WATER	----
CITY SER WATER	----
FIRE PROTECTION	----
CHEMICAL LINES	----
OILY WASTE	----
POSITION DOUBTFUL	----

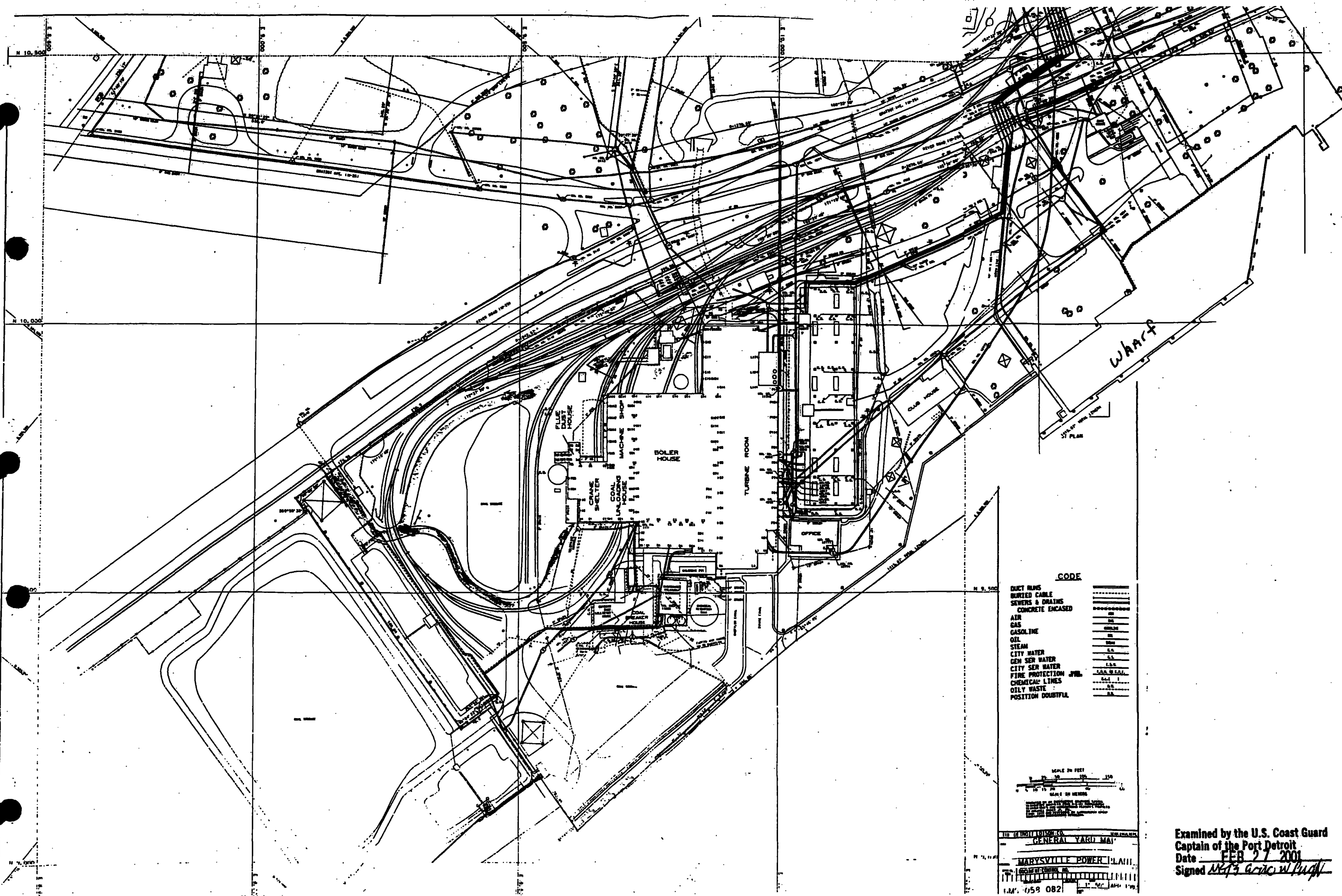
Oil filled Transformers

DETAIL - "A"



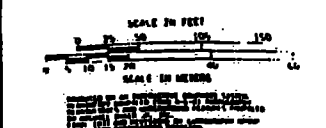
To Gratiot Ave

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed [Signature]



CODE

DUCT RUNS	----
BURIED CABLE	-----
SEWERS & DRAINS	~~~~~
CONCRETE ENCASED	=====
AIR	----
GAS	-----
GASOLINE	~~~~~
OIL	=====
STEAM	----
CITY WATER	-----
CEN SER WATER	~~~~~
CITY SER WATER	=====
FIRE PROTECTION JWB	----
CHEMICAL LINES	-----
OILY WASTE	~~~~~
POSITION DOUBTFUL	=====

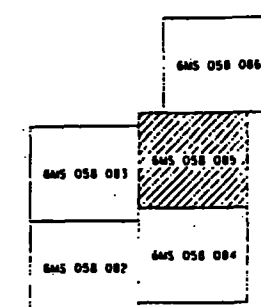
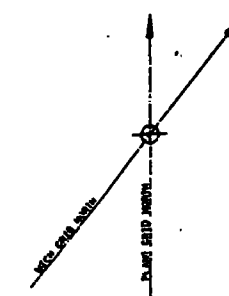


THE PROPERTY OF THE U.S. COAST GUARD
GENERAL YARD MAINTENANCE
MARYSVILLE POWER PLANT
NO. 058 082

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed *W. J. G. W. W. W.*

MICHAEL BAKER, JR., INC.

ENGINEERING
DESIGN

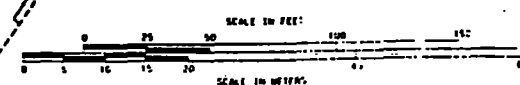


PLAT PLAN

CODE

DUCT RUNS	-----
BURIED CABLE	-----
SEWERS & DRAINS	-----
CONCRETE ENCASED	-----
AIR	-----
GAS	-----
GASOLINE	-----
OIL	-----
STEAM	-----
CITY WATER	-----
GEN. SER. WATER	-----
CITY SER. WATER	-----
FIRE PROTECTION	-----
CHEMICAL LINES	-----
OILY WASTE	-----
POSITION DOWNS	-----

DETAIL - "A"



Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date FEB 27 2001
Signed [Signature]

**OIL SPILL CONTINGENCY PLAN
FOR
MARYSVILLE WHARF AND TERMINAL FACILITY**

FRP 0500017

**THE DETROIT EDISON COMPANY
MARYSVILLE TERMINAL FACILITY
301 GRATIOT AVE
MARYSVILLE, MI 48040
February 18th 1993**

**Latest Revision
February 2010**

1.1- Facility Information

Facility Name: Detroit Edison Marysville Terminal Facility

Owner: DTE Energy-Detroit Edison

Owner Address: One Energy Plaza, Detroit, MI 48226

Dun & Bradstreet Number: 072762904

Standard Industrial Classification code: 4911

Wellhead: None on the site, No surface impoundments on site.

Largest aboveground storage tank: 18.7 million gal

Number of aboveground storage tanks: 3

Maximum oil storage capacity: 20.9 million gal

Worst case oil discharge amount: 18.7 million gal

Facility adjacent to navigable waters, St. Clair River and Bunce Creek.

1.2 - Location Information

Facility Address: **301 North Gratiot Ave.**

Marysville, MI

48040

County: St. Clair

Latitude: 42° 55' 32" North Longitude: 82° 27' 33" West

Section: 28 Township: 6 N Range: 17 E

1.3 – Contact information

Marysville Terminal 24 Hour Phone Number: (810) 364-9390

Marysville Terminal Fax: (810) 364-2210

1.3 – Contact information (cont.)

Qualified Individuals

Primary	Secondary
Joe Neruda Environmental Compliance Specialist	Steve Down Principal Environmental Engineer
Work phone: (810) 326-6356 Pager: (313) 212-3949 Home phone:	Work phone : (810) 326-6355 Pager: Home phone:

The QI's have been trained as level 5 Incident Commanders and receive annual refresher training. They also have been trained in oil recovery and oil spill prevention.

Current Information on facility is available in section 7.1 of this manual.

1.4 – TABLE OF CONTENTS (see pages 5-8 for an expanded table)

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1.4	Expanded Table of contents
2	Emergency Response Information
2.1	Notification Procedures
	Power Plant Order 222 "Spill Notifications"
2.2	Spill Mitigation Procedures
	Fire Protection
2.3	Response Activities
	OSRO Documentation
2.4	Sensitive Areas
2.5	Disposal Plan
	Environmental Program 5 "Waste Disposal"
3	Hazard Evaluation
4	Worst case Discharge Scenario
5	Training and drills
5.1	Training Procedures
5.2	Drill Procedures
6	Plan Review and Update Procedures
7	Appendices
7.1	Facility Specific Information
	Functional System Description No. 2 "Wharf On/Off Loading Facility".
	Functional System Description No. 3 "Transfer to Storage"
7.2	List of Contacts
7.3	Equipment Lists and Records
7.4	Communications Plan
7.5	Facility Safety and Health Plan
	Marysville Power Plant Order, No. M-7 (Fire Fighting and Plant Evacuation Procedures)
	Power Plant Order No. 52 (Personnel Safety During Plant Emergencies)
7.6	Acronyms and Definitions

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Note: This cross reference is designed to aid in identifying which sections of this plan contain information required by the United States Protection Agency "1.0 Standard Facility –Specific Response Plan" pre-decisional document, dated September 17, 1992. Refer to expanded table contents for additional information.

1.6 Record of Response Plan Changes

Revision Date	Changes Made	Revised by
02-18-93	Original Plan Submitted	
04-04-94	Changes made in response to USCG memo dated 02-02-94	
01-12-95	Changes made in response to EPA memo dated 12-16-94 and USCG memo dated 12-6-94.	
02-10-95	Manual redone in response to USEPA memo dated 12-16-94 And regulatory requirements of 2-18-95.	JAM
12-1-95	QI's work phone numbers, revised references to facility response equipment and personnel list. (all will be supplied by OSRO) updated several phone numbers, removed Great Lakes Environmental as OSRO and their equipment listed in section 7.3.1.2, section 5.2.3 (equipment deployment drills), updated copy of Hazardous Material Waste Disposal plan (PPO 226) Rev.2, Pages changed 1-8, 10-12, 15, 16, 32-44,56,74,92,93, 95-104, 109.	JAM
10-96	Annual Review, submitted new "letter of intent to C.O.T.P	JAM
3-97	Annual Review, no revisions	JAM
12-1-97	Added, "Specification used oil" (used oil) as product in pipeline and tanks, added MSDS sheets for No. 4 and used oil, residual oil will mean No.2,4,6 & used oil in any procedure. Change of personnel titles, updated PO 15. Rev. 3 Pages Changed: 1,4,5,6,8,10,17,22,26,41,46,51,59,60,64,65,66,68,72,81,82,83,84,86,95,114	JAM
2-98	Annual Review Replaced PPO 222, update two phone #'s	JAM
8-98	Added worse case discharge into triennial exercise.	JAM
2-25-99	Manual Revision. 4, dated 2/25/99. Changed secondary QI, updated several phone numbers, numerous plan/manual changes, added radios used are intrinsically safe, expanded procedures (section 2.3) to be more specific for leaks. Added instructions for vessel slop in section 7.1.1.	JAM
2-23-00	Revised Pages 10 & 11 minor changes, pg. 44 capacity of terminal oil water separator updated/increased, list of qualified operators updated.	JAM
2-1-01	Pages changed 1,2,5,7,9,10,11,12,13,15,16,17,23,32,34,36,37,38,40,44,45,46,47,48,49,50,52,54, 57, 59, 61,65,66,68,70,74,75,76,79,80,82. Revised plan to comply with EPA review, removed Number 4 oil as product, added phone numbers, changed facility response team members, added berm containment volume, updated spill history and added tank capacities, added drainage diagram, added removable ERAP to front of plan, listed regrouping areas, updated version of PPO 226 after page 45.	JAM
10-09-01	Put in the latest copy of plant evacuation plan dated 8-1-01	JAM

1.6 Record of Response Plan Changes (cont.)

1-09-02	OSRO letter for 2001	JAM
2-2002	Plan review no changes needed, OSRO letter	JAM
2-2003	New OSRO letter, letter to COTP Page 26 removed No.4 oil also removed No. 4 oil MSDS from appendix.	JAM
2-1-2003	Plan, rev.5, Revised Plan to be consistent with both ACP's updated OSRO info. Added to QI responsibilities, communication equipment, updated phone numbers and 24 hour contact phone numbers, abnormal operating conditions, added specific spill response information, oil types, updated worst case discharge volume utilizing leaking check valve, included plan review requirements for DOT. Update ERAP with rev . 5 information.	JAM
8-10-03	Pages Changed 29,61,73,53-58 Reduced training records retention requirements, listed additional communication equipment and it's deployment, spill response information enhanced.	JAM
3-2004	New OSRO letter, & letter to COTP	JAM
6-2005	Andrews work phone #, see file for listings by page #'s	JAM
11-2005	Change phone # to call USCG for oil spill to 313 568-9560	JAM
3-2006	Review + minor updates PO M-7, PPO 226	JAM
3-2007	Reviewed Plan no changes made	JAM
11-2008	Reviewed plan no changes required, new A.C.P. is approved.	JAM
9-2009	Reviewed plan no changes required	JAM
2-22-10	Primary QI changed from Jim Masterson to Joe Neruda Secondary QI changed from Andrew Fadanelli to Steve Down All contact information for QI's including addresses updated throughout the manual.	J.N.
2-23-10	Pages renumbered and Table of contents revised to include reference materials and drawings already within the plan. Neither the actual size of the plan nor the order has changed. All documents within the plan now have page numbers for easier reference.	J.N.
2-24-10	<ol style="list-style-type: none"> 1. Paragraph 1, Page 44 (page 23 in old manual) Reference to Plant Committee "Hazardous Material Spill Control Committee changed to Environmental Cross Functional Team (CFT). 2. Removed references to Nova Net environmental training in sections 5.1.1, 5.1.3 replaced with Annual computer based environmental training. 3. Removed No.2 Fuel oil MSDS from section 7.1.4.3 also removed No.6 Fuel oil MSDS from section 7.1.4.4, There are copies of all oil product MSDS sheets in section 3.2 Product Information. 4. Updated Reference to MDEQ on contact list. Changed from MDEQ to MNDR&E. 	J.N.

1.6 Record of Response Plan Changes (cont.)

2-25-10	Power Plant Order 226 Waste Disposal in section "2.5 Disposal Plan" was replaced by Environmental Program 5 WASTE Disposal.	J.N.
2-26-10	Updated MSDS, Product Safety sheets for NO.2 Fuel Oil, NO. 6 Fuel Oil.	J.N.
2-27-10	Replaced Power Plant Order 52 with updated copy	J.N.
2-28-10	Updated Spill History in section 3.3 to be current with 2010.	J.N.
3-3-10	1. Updated signature on "Applicability of Substantial Harm Criteria Form" 2. Updated "letter of Intent" and signature.	J.N.
3-12-10	Plan Review and 5yr Re-submittal of FRP Plan to USCG, EPA, copies also distributed to GWEC and Local Emergency Planning Commission.	J.N.
4-7-10	Under Spill mitigation procedures section 2.2.2.1 added information about oil collection sump at the wharf shelter and containment berms to prevent spilled oil from running into the river. Removed reference to unloading arm failure or transfer hose failure under section 2.2.2.1, then created a whole new section 2.2.2.7 titled (Failure Unloading Arm or Transfer Hose) with more detailed procedures to follow should this equipment fail. Also provided a description of the wharf collection sump. Updated expanded table of contents to reflect this addition. Pages revised 5, 52 & 54.	J.N.

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**EMERGENCY RESPONSE ACTION PLAN
FOR
MARYSVILLE WHARF AND TERMINAL FACILITY**

FRP 0500017

**THE DETROIT EDISON COMPANY
MARYSVILLE TERMINAL FACILITY
301 GRATIOT AVE
MARYSVILLE, MI 48040**

(Quick Grab ERAP pull out section at Front of Plan)

2.0 EMERGENCY RESPONSE ACTION PLAN

1. Any employee discovering an oil spill must immediately notify his or her supervisor, and the on-duty Shift Supervisor. If a spill has reached the river and a contractor will be needed to minimize the damages, call in an OSRO listed in 3.a.1. on following page First. The on-duty Shift Supervisor must notify the Primary or Alternate Qualified Individual (QI) immediately. The on-duty Shift Supervisor will act as the QI until the Primary QI is on site.

Primary	Secondary
Joe Neruda Environmental Compliance Specialist	Steve Down Principal Environmental Engineer
Work phone: (810) 326-6356 Pager: 4 Home phone: Cell: (313) 212-3949	Work phone : (810) 326-6355 Pager: Home phone:

Duties of the QI are listed separately in Section 2.3 and are included as part of this response procedure.

2. In the event of any possible fire, explosion or release of oil that could threaten human health or the environment, the QI or delegate must:
 - a. Activate internal facility alarms and communication system to notify all facility personnel. The Marysville Fire Fighting and Evacuation Procedure is found in Appendix D.
 - b. Immediately identify the character, exact source, amount and the extent of any released oil material. Also, determine the number and extent of injuries, if any. Make every effort to stop and contain the spill. Use HAZWOPER Awareness Level trained personnel to deploy oil containment equipment away from the immediate spill area. DECo personnel with Awareness Level training should NOT directly engage the spilled material until any hazards have been deemed safe and allowable.
 - c. Assess possible hazard to human health or the environment. This is done by determining the chance that released material may reach Bunce Creek, the St. Clair River, or off Detroit Edison property over land.

2.0. - EMERGENCY RESPONSE ACTION PLAN (cont.)

3. Use the form in Power Plant Order 222 to document all notifications to internal DECo personnel, government agencies, contractors, and others regarding the emergency incident. A copy PPO 222 is inserted on pages 33-44.

a. Should the spill of an oil material reach the environment (Bunce Creek, St. Clair River, or off DECo Property over land), the following government agencies must be notified immediately. Do not wait for collection of all information regarding the spill before starting these notifications.

(Notification Phone List)

1. Oil Spill Response Organization (OSRO) (313) 849-2333
Marine Pollution Control, see 14 below for additional OSROs
2. National Response Center Phone: 1-800-424-8802
3. Primary QI: Joe Neruda
Work Phone (810) 326-6356
Pager Number
Evening Phone:
4. Secondary QI: Steve Down
Work Phone (810) 326-6355
Pager Number
Evening Phone:
5. U.S. Coast Guard Sector Detroit
Detroit. 7:00 AM-3:30 PM Mon-Friday (313) 568-9580
After hours call the Coast Guard Group (313) 568-9524
Ask to have the MSO Duty Officer contacted.

The Duty Officer will determine the need for the facility to continue with notifications of local Emergency Management System numbers listed below.

6. Local Response Team: Marysville Fire Dept.
24 Hour Phone: (810) 364-6611
7. Marysville Fire Chief 911

2.0. - EMERGENCY RESPONSE ACTION PLAN (cont.)

8. St. Clair County Sheriff (810) 987-1710 or
Local Emergency Planning Committee (810) 985-8115
9. State Emergency Response Commission: (800) 292-4706 (24 Hour)
10. State Police 911
11. Michigan Department Natural Resources & Environment

Pollution Emergency Alerting System (PEAS) (800) 292-4706
12. Local Water Supply and Wastewater Treatment System: (810) 364-8460
(Marysville Water Filtration Plant)
- 13: Hospitals
 Mercy (810) 985-1500
 Port Huron (810) 987-5000
 River District (810) 329-7111
14. Contractors Oil Spill Response Organization (OSRO)
 Primary OSRO Marine Pollution Control (800) 521-8232
 Inland Waters (800) 992-9118
 Pros Services (810) 982-7271
15. Facility Coordinator: Shift Supervisor
 24 Hour Phone: (810) 364-9390
16. Weather report Edison Intranet
17. Local evacuation will be handled by the Local Emergency Response Committee.
 Local Radio station 1380 WPHM (810) 987-4100
 Local television Channel 7 WXYZ (248) 827-7777

3. (b.) Where human health or the environment are threatened arrange for possible evacuation and notify government officials.

- Michigan State Police 911

2.0 - EMERGENCY RESPONSE ACTION PLAN (cont.)

- | | |
|---|----------------|
| ▪ Marysville Police and/or Fire Dept. | 911 |
| ▪ Marysville Fire Chief | 911 |
| ▪ State Emergency Response Commission | (800) 292-4706 |
| ▪ Marysville Water Filtration/Water Plant | (810) 364-8460 |
| ▪ Federal On-Scene Coordinator | (312) 886-4739 |

3. (c.) The following contractors have blanket contracts with Detroit Edison and have labor and equipment to assist in oil spill incidents.

- | | |
|---|--------------|
| Primary OSRO Marine Pollution Control Corp. | 800-521-8232 |
| Inland Waters, Inc. | 800 992 9118 |
| Pros Services. | 810 982-7271 |

Additional oil spill containment and cleanup materials are available from a Marine Pollution Control Corp. Roll-off box parked at Eugene Welding Company, 2420 Wells, Marysville, MI. Contact the Eugene Welding for access to this equipment.

- | | |
|---------------------------|----------------|
| xiii. Eugene Welding Co., | |
| Jerry Cunningham | (810) 364-7421 |

3.(d.) For aerial surveys of a spill call, Gateway Air Services, (989)775-3515.

3.(e.) Notify the following Company personnel as soon as possible (Ref. P.P.O. #222):

- Director, Environmental Protection: 235 7141. During off hours, call the next regular working day.
- Legal Department, Public Liability: 235-7710. During off hours, call (810) 235-8000.

4. If operations are stopped in response to a fire, explosion or release, then monitor for further leaks, pressure buildups inside vessels, gas generation, or ruptures of valves, pipes or other equipment.

5. Immediately after the emergency, provide for treating, storing or disposing of recovered waste, contaminated soil or surface water, or other material. Arrange for the cleanup and have emergency equipment clean and fit before continued operation.

6. The Regional Administrator (MDEQ) must be notified within 10 days with a written report and appropriate State and Local authorities must be notified prior to continued disposal that all cleanup is complete, and that emergency equipment is clean and fit. The Director, Environmental Protection, will make these notifications in writing within 10 days. This report must include:

- a. Name, address and telephone number of the owner of property and facility.

2.0 - EMERGENCY RESPONSE ACTION PLAN (cont.)

- b. Date, time and type of incident (e.g., fire, explosion)
- c. Name and quantity of material(s) involved
- d. The extent of injuries, if any, and an assessment of actual and potential hazards to human health or the environment, where this is possible.
- e. Estimated quantity and disposition of recovered material that resulted from the incident.

2.1.1 Emergency Notification Phone List

24 hour assistance is available from DTE Environmental Management and Resources at 313-268-1191 (cell) or 800-280-5867

EMERGENCY NOTIFICATION PHONE LIST

Facility Name: Marysville Terminal Facility

If the spill is into or will reach the river call a contractor first if they will be able to minimize the damages. Describe the extent of the spill and location. Additional information on notification requirements is covered in Power Plant Order 222. Document all notifications, internal, government, and contractors.

Date of Spill _____ **Location** _____

Time of Spill _____ **Person Discovering Spill** _____

Phone No. of Person Discovering Spill _____

ORGANIZATION	TIME CONTACTED	PERSON CONTACTED	BY: WHOM
National Response Center USCG: 1(800) 424-8802			
Oil Spill Response Organization, MPC Marine Pollution Control 1(313) 849-2333			
Primary QI: Joe Neruda Work: 1(810) 326-6356 Home: Cell: 1(313) 212-3949 Pager			
Secondary QI: Steve Down Work: 1(810) 326-6355 Home: Cell: 1(810) 434-1446 Pager:			

2.1.1 Emergency Notification Phone List (cont.)

ORGANIZATION	TIME CONTACTED	PERSON CONTACTED	BY: WHOM
U.S. Coast Guard Sector Detroit 1(313) 568-9580 After Hours:1-(313)-568-9560			
Local Response Team Marysville Fire Department 24 Hour call Phone # 911			
St. Clair County Emergency Management Division 1(810)-989-6965			
Federal On-Scene Coordinator 1(312) 886-4739			
State Police, Fire Marshall 1(810) 495-4677 or 911			
Marysville Water Filtration Plant 1(810) 364-8640 1(810) 364-6050			
MDNR&E Pollution Emergency Alerting system (PEAS) 1(800) 292-4706			
MDNR&E Warren, MI 1(586) 753-3792			

2.1.1 Emergency Notification Phone List (cont.)

ORGANIZATION	TIME CONTACTED	PERSON CONTACTED	BY: WHOM
Detroit Edison Environmental Management (EMR) 24 HR Cell: 1(313) 268-1191 Pager: 1(800)-280-5867			
Detroit Edison Legal Department 1(313) 235-7705			
Detroit Edison, Community & Governmental Affairs Regional Manager 1(586) 412-3206			
Detroit Edison, Media Relations 1(313)235-8807			
(Hospitals) Mercy (810) 985-1500 Port Huron (810) 987-5000 River District (810) 329-7111			

2.1.2 Facility Response Capability Certification, Letter of Intent and Persons in Charge of Wharf Facilities

- (1.) The Facility "Applicability of Substantial Harm Criteria" is on page 24.**
- (2.) Pages 25-26 calculation sheet for a worst case discharge scenario**
- (3.) Page 27 is a copy of the "Facility Capability Certification"**
- (4.) Page 28 is a copy of the "Letter of Intent"**
- (5.) Page 29 is a current copy of the "Persons in Charge of Oil Wharf Facilities"**

APPLICABILITY OF SUBSTANTIAL HARM CRITERIA

Does the facility transfer oil over-water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes X
No

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and, within any storage area, does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation?

Yes
No X

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Appendix C or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

Yes X
No

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Appendix C or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?

Yes X
No

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

Yes
No X

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining information, I believe that the submitted information is true, accurate, and complete.

Signature: Joseph Neruda

Name (Please type or print): Joseph Neruda

Title: Environmental Specialist

Date: 3/5/10

FOR WORST CASE DISCHARGE

Part I Background Information WORKSHEET WAS NOT INCLUDED			
Step (A) Calculate Worst Case Discharge in barrels (Appendix D)		(A) 445,238 BBL	
Step (B) Oil Group ¹ (Table 3 and section 1.2 of Appendix E)		Group 3	
Step (C) Operating Area (choose one)			
Nearshore/Inland Great Lakes		or Rivers and Canals	X
Step (D) Percentages of Oil (Table 2)			
Percent Lost to Natural Dissipation	Percent Recovered Floating Oil	Percent Oil Onshore	
(D1) 20	(D2) 15	(D3) 65	
Step (E1) On-Water Recovery: $\frac{\text{Step (D2)} \times \text{Step (A)}}{100}$		(E1) 89,048 BBL	
Step (E2) Shoreline Recovery: $\frac{\text{Step (D3)} \times (\text{Step (A)})}{100}$		(E2) 289,405 BBL	
Step (F) Emulsification Factor (Table 3)		2	
Step (G) On-Water Oil Recovery Resource Mobilization Factor (Table 4)		.3	
Tier 1	Tier (2)	Tier (3)	
(G1) 0.3	(G2) 0.4	(G3) 0.6	

¹ A facility that handles, stores or transports multiple groups of oil must do separate calculations for each oil group on site except for those oil groups that constitute 10 percent or less by volume of the total oil storage capacity at the facility. For purposes of this calculation, the volume of oil products in an oil group must be summed to determine the percentage of the facility's total oil storage capacity.

Tables can be found in Appendix E of CFR 112.20, Non-Transportation Related On Shore Facilities, Final Rule.

Examined by the U.S. Coast Guard
 Captain of the Port Detroit
 Date FEB 27 2000
 Signed *Matt Grogan*

Part II <u>On-Water Oil Recovery Capacity</u> (barrels/day)		
Tier 1 Step (E1) x Step (F) x Step (G1)	Tier 2 Step (E1) x Step (F) x Step (G2)	Tier 3 Step (E1) x Step (F) x Step (G3)
53,429	71,238	106,858
Part III <u>Shoreline Cleanup Volume</u> (barrels) Step (E2) x Step (F)		578,810
Part IV <u>On-Water Response Capacity By Operating Area</u> (Table 5) (Amount Needed to be contracted for in barrels/day)		
Tier 1	Tier 2	Tier 3
(J1) 1,500	(J2) 3,000	(J3) 6,000
Part V <u>On-Water Amount Needed to be Identified but not Contracted for in Advance</u> (barrels/day)		
Tier 1 Part II Tier 1 - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)
51,929	68,238	100,858

Note: To convert from barrels/day to gallons/day, multiply the quantities in Parts II through V by 42 gallons/barrel.

Examined by the U.S. Coast Guard
 Captain of the Port Detroit
 Date FEB 27 2001
 Signed *[Signature]*

FACILITY CERTIFICATION
Pursuant to the Clean Water Act Section 311(j)(5)(F)

FRP 0500017
Detroit Edison - Marysville Terminal
301 Gratiot Boulevard
Marysville, MI 48040-1176

The undersigned, the owner or operator of the above referenced facility who is authorized to sign this certification on behalf of this facility, hereby certifies that the above referenced facility has prepared a response plan, as required by Section 311(j)(5) of the Clean Water Act, as amended by the Oil Pollution Act of 1990, which will be implemented in the event of a discharge of oil. I also certify that the plan is currently in effect at the facility, and that facility personnel are trained in the implementation of the plan.

I further certify that the availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to a worst case discharge or a substantial threat of a discharge is ensured by contract or other approved means.

I further certify that one of the following applies:
[please mark the applicable statement and fill out any relevant dates]

- ☒ A response to EPA comments was submitted on 02-17-95.
- ☐ A response to EPA comments has not yet been submitted, but will be submitted by February 18, 1995.

Name: Dennis J. Miller

Title: Plant Supervisor

Signature: *Dennis J. Miller*

Date: 02-20-95

Please return the completed certification statement by close of business on February 18, 1995 to:

Karen Vendl
U.S. EPA Region V
Emergency Response Branch (HSE-5J)
77 W. Jackson Boulevard
Chicago, IL 60604

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date _____
Signed SKZ

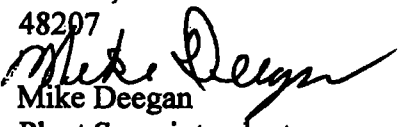


Detroit Edison
A DTE Energy Company

Detroit Edison
Marysville Power Plant
301 Gratiot Blvd
Marysville MI. 48040-0000

Date: March 5, 2010

To: Captain of the Port
United States Coast Guard
Sector Detroit
110 Mt. Elliot Ave.
Detroit, MI
48207

From:  Mike Deegan
Plant Superintendent
Marysville Power Plant

Subject: 5yr submittal of Marysville Terminal Facility FRP

This letter is to inform you that the Marysville Terminal Facility, located at 301 Gratiot Boulevard, Marysville, MI 48040 has updated its Facility Response Plan. Please see the following page for a detailed list of revisions that were made to the plan. In addition a complete revision history from the original submission of the FRP is documented within the manual in section: 1.6 "Record of Response Plan Changes".

The Plant Superintendent, Mike Deegan, can be reached by telephone during normal business hours at (810) 364-2235

Should you have any questions concerning the Facility Response Plan please contact Joe Neruda, Environmental Compliance Specialist at (810) 326-6356 or (313) 212-3949.

Sincerely,

Michael Deegan

Detailed List of Recent FRP Revisions Marysville Terminal Facility

During the 5yr review the following revisions were made to the FRP.

1.

2-22-10	Primary QI changed from Jim Masterson to Joe Neruda Secondary QI changed from Andrew Fadanelli to Steve Down All contact information for QI's including addresses updated throughout the manual.	J.Neruda
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2.

2-23-10	Pages renumbered and Table of contents revised to include reference materials and drawings already within the plan. Neither the actual size of the plan nor the order has changed. All documents within the plan now have page numbers for easier reference.	J.Neruda
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3.

2-24-10	<ol style="list-style-type: none">1. Paragraph 1, Page 44 (page 23 in old manual) Reference to Plant Committee "Hazardous Material Spill Control Committee changed to Environmental Cross Functional Team (CFT).2. Removed references to Nova Net environmental training in sections 5.1.1, 5.1.3 replaced with Annual computer based environmental training.3. Removed No.2 Fuel oil MSDS from section 7.1.4.3 also removed No.6 Fuel oil MSDS from section 7.1.4.4, There are copies of all oil product MSDS sheets in section 3.2 Product Information.4. Updated Reference to MDEQ on contact list. Changed from MDEQ to MNDR&E.	J.Neruda
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4.

2-25-10	Power Plant Order 226 Waste Disposal in section "2.5 Disposal Plan" was replaced by Environmental Program 5 WASTE Disposal.	J.Neruda
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5.

2-26-10	Updated MSDS, Product Safety sheets for N0.2 Fuel Oil, N0. 6 Fuel Oil.	J.Neruda
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6.

2-27-10	Replaced Power Plant Order 52 with updated copy	J.Neruda
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7.

2-28-10	Updated Spill History in section 3.3 to be current with 2010.	J.Neruda
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8.

3-3-10	<ol style="list-style-type: none">1. Updated signature on "Applicability of Substantial Harm Criteria Form"2. Updated "letter of Intent" and signature.	J.Neruda
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9.

3-5-10	Plan Review and 5yr Re-submittal of FRP Plan to USCG, EPA, copies also distributed to GWEC and Local Emergency Planning Commission.	J.Neruda
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Marysville Power Plant

Power Generation

Date: January 23, 2009

To: Wharf Operating Manual
Marysville Terminal Facility

From: James Masterson
Environmental Compliance Specialist

Subject: Individuals Qualified to be "Person In Charge" of Oil Wharf Facility

1. David Maynard
2. Glenn Taylor
3. David Sanderson
4. Dave Marquis
5. Michael Wesch
6. Bart Stockwell
7. Robert Thibert
8. Nancy Thomas
9. Alan Booth
10. Jamie Shovan
11. Dan Gruben
12. Jennifer Fowler
13. Donald Cleland

Training

Each operator receives 48 hours of actual on the job training before being certified to assume the responsibilities of Wharf Person in Charge (P.I.C.).

While training the operator reviews step by step procedures (JITS) and the Wharf Operating Manual, which are prepared for the Marysville Terminal Facility. Each trainee is also instructed by certified operators on proper communication, emergency oil spill and fire response procedures.

Cc: Terminal OPA Manual
File
Mike Deegan
Posted in Wharf Control Room
United States Coast Guard
Ed Paquette

2.1.3 Notification Form

24 hour assistance is available from DTE Environmental Management and Resources at 313-268-1191 (cell) or 800-280-5867

DETROIT EDISON COMPANY – MARYSVILLE TERMINAL FACILITY INFORMATION ON OIL/HAZARDOUS MATERIAL DISCHARGE*

Reporting Party

Name: _____

Telephone: (_____) _____ - _____

Company: Detroit Edison – Marysville Terminal Facility

Position: _____

Address: 301 Gratiot Ave.

City: Marysville State: Michigan Zipcode: 48040

Were Materials Discharged? (Y/N)

Calling for the Responsible Party? (Y/N)

Incident Description

Source and/or Cause of Incident: _____

Date: ____ - ____ - ____ Time: ____

Cause: _____

Incident Address/Location: _____

Nearest City: _____ Distance from City: _____

Storage Tank Container Type: Above Ground (Y/N) Below Ground (Y/N) Unk.

Tank Capacity: _____ Facility Capacity: _____

Latitude Degrees: 42° 55' 32 "North Longitude Degrees: 82° 27' 33 "West

Mile Post or River Mile: _____

Materials

Discharge Quantity: _____ Unit of Measure: _____

Discharged Material: _____ Quantity in Water: _____ U/M ____

Response Action

Actions Taken to Correct or Mitigate Incident: _____

2.1.3 Notification Form (cont.)

Impact

Number of Injuries: _____ Number of Fatalities: _____

Were there Evacuations? (Y/N/Unk) Number Evacuated: _____

Was there any Damage? (Y/N/Unk) Damage in Dollars: _____

Additional Information

Any information about the Incident not recorded elsewhere in the report: _____

Caller Notifications:

USCG _____ EPA _____ STATE _____ OTHER _____

911 _____

***IT IS NOT NECESSARY TO WAIT FOR ALL INFORMATION BEFORE CALL THE NRC National Response Center - 1-800-424-8802**

PPO 222
"Spill Notification"

2.1.4 Detroit Edison Power Plant Order No. 222 (Spill Notifications)

Plant Order No.222 "Spill Notifications" is on the following 12 pages.

The purpose of this order is to specify the requirements and to assign responsibilities for control and notification procedures involving spill incidents.

Refer to the electronic copy of the plant order for the most current copy found on all Power Plant Websites.

2.2 Spill Prevention and Mitigation

The wharf is manned on an "as needed" basis. Trained wharf personnel are present for the duration of all transfer operations. The "person in charge" on the wharf will be responsible for the unloading operation, monitoring control and alarm functions, and general wharf maintenance. In addition the "person in Charge" must determine that the conditions of the "Coast Guard Declaration of Inspection" form are met and that the form has been completed before any transfer operations.

The wharf and trestle pipeline is connected to the balance of the Marysville Terminal Facility via two 10" underground pipelines. Storage of No. 2 or specification used oil is provided by one of 675,000 gallon "Cutter stock" tank. Storage of oil (No.2, No. 6 and Specification Used) is provided by one 17,000,000 gal tank. An additional 3,200,000 gallon tank is provided for metering of all oil receipts. The three tanks are surrounded by a clay lined earthen berm. Each of the three tanks is further segregated by a secondary clay lined berm. The berms are designed to contain 110% of the largest tank plus 25% of the remaining tanks on site. For this plan and other procedures included (Specification Used Oil) will be interchangeable with used oil, No.2 or No.6 Oil.

Each of these three bermed areas has its own valved drain line to provide rain water runoff discharge to a common drainage system. These drains flow to an oil/water separator for treatment before discharge via an NPDES outfall to Bunce Creek. Discharge is manually operated under the direct control of an operator. Discharges are made during daylight hours only after the operator determines that no oil exists in the runoff.

A fire protection system has fire detection, audio and visual alarm, and foam/water dispensing capabilities to all oil storage tanks and bermed areas. Water hydrants also are available at the wharf facility.

Normal operating procedures for the MTF do not include long term storage of any oil. Oil received at the terminal is stored temporarily until it can be transferred to the Greenwood Energy Center via a 19 mile underground pipeline.

All potential oil spill areas are inspected during normal operator rounds. Minor oil drips or spills on the ground are wiped up immediately with rags or oil absorbent compounds and disposed of as solid waste. When oil spills are discovered, general procedures are to stop the leak, attempt to contain the spill, and prevent it from reaching water.

If oil escapes to the environment and is too large to be sufficiently handled by facility operators as normal maintenance, emergency outside assistance has been arranged through several emergency response contractors. Details of these contractors' capabilities and responsibilities during an emergency are found in Section 2.3.3.10.

Power Plant Order No. 222 also lists specific notification and reporting procedures to be followed during a spill incident.

2.2 - SPILL PREVENTION AND MITIGATION (cont.)

A plant committee, known as the Environmental Cross Functional Team (CFT) will meet periodically to review the Marysville Power Plant Best Management Practices program for hazardous materials, and any spill or near-spill incidents that occurred in the time between meetings. The members of the committee include, but are not limited to, the Plant Superintendent, Plant Supervisor, Sr. Engineering Technician, North Area Maintenance/Technical Engineer, North Area Environmental Compliance Specialist, North Area Principal Environmental Engineer, North Area Chemical Engineer, and Shift Supervisors. There shall be minutes of each meeting. Program improvements are to be recommended as new handling and control practices are developed. This group has the responsibility of amending this program whenever notified of revisions in applicable regulations, or whenever the listed emergency coordinator(s) is/are changed. In the event this plan fails in an emergency, or whenever a change in facility design, construction, operation or maintenance occurs that materially affects the facility's potential for discharge of significant amounts of hazardous or toxic pollutants, this group will be responsible for amending this program accordingly. The meeting minutes are kept on file at the plant.

2.2.1.1 - Discharge Detection Systems

Discharge detection monitoring is performed by routine personnel inspections and automated leak detection devices. Details concerning these leak detection monitoring systems are outlined below.

2.2.1.2 - Automated Discharge Protection

1. Metering Tank

- A high-high level switch closes the inlet valves to the tank and alarms at the main control panel in the Terminal Control Room. The high-high alarm level is 39.5 feet (98.75% of capacity).
- A high-level switch alarms at the wharf control panel and main control panel in the Terminal Control Room. The high alarm level is 38.5 feet (96.25% of capacity).
- A low level switch stops the tank mixer and alarms on the main control panel in the Terminal Control Room. The low alarm level is 4.0 feet (10% of capacity).
- A low-low level switch stops the barge loading, tank to tank transfer, and blending pumps and alarms on the main control panel in the Terminal Control Room. The low-low alarm level is 3.0 feet (7.5% of tank capacity).
- A storage temperature transmitter alarms on the main control panel in the Terminal Control Room. The low level alarm is 115 F and the high alarm level is 200 F.

2. Main Storage Tank

- A high-high level switch closes the inlet valves to the tank and alarms at the main control panel in the Terminal Control Room. The high-high alarm level is 31.5 feet (98.4% of capacity)
- A high-level switch alarms at the wharf control panel and main control panel in the Terminal

2.2.1.2 - Automated Discharge Protection (cont.)

- Control Room. The high alarm level is 30.5 feet (95.3% of capacity).
- A low level switch stops the tank mixer and alarms on the main control panel in the Terminal Control Room. The low alarm level is 4.0 feet (12.5% of capacity).
- A low-low level switch stops the barge loading, tank to tank transfer, and blending pumps and alarms on the main control panel in the Terminal Control Room. The low-low alarm level is 3.0 feet (9.4% of tank capacity).
- A storage temperature transmitter alarms on the main control panel in the Terminal Control Room. The low level alarm is 115 F and the high alarm level is 200 F.

3. No. 2 (Cutter) Storage Tank

- A high-high level switch closes the inlet valves to the tank and alarms at the main control panel in the Terminal Control Room. The high-high alarm level is 31.5 feet (98.4% of capacity)
- A high-level switch alarms at the wharf control panel and main control panel in the Terminal Control Room. The high alarm level is 30.5 feet (95.3% of capacity).
- A low level switch stops the tank mixer and alarms on the main control panel in the Terminal Control Room. The low alarm level is 4.0 feet (12.5% of capacity).
- A low-low level switch stops the barge loading, tank to tank transfer, and blending pumps and alarms on the main control panel in the Terminal Control Room. The low-low alarm level is 3.0 feet (9.4% of tank capacity).

4. Pumps

- Each pump is provided with a pump discharge high pressure switch that stops the pump at a pressure setting of 110 psig and alarms on the main control panel in the Terminal Control Room.
- Each pump suction strainer is equipped with a differential pressure switch set at 5 psig and alarms on the main control panel in the Terminal Control Room.
- The suction header to the pump station is provided with a low suction pressure switch set at 5 inches vacuum which stops the pumps.
- Each pump is provided with a full flow relief valve set at 110 psig.

2.2.1.3 - Discharge Detection by Personnel

During all periods of off-loading, an operator is stationed on the wharf. The wharf operator is in constant communication with the barge operator and can instruct the barge to shut down if any oil loss is visually detected. In addition, motor operated valve at each end of the trestle pipeline can be isolated in the event of a trestle line leak.

During all periods of oil off-loading and oil pumping to Greenwood, operators are stationed at the Marysville Terminal Facility Control Room located east of the main oil tank. Inspection rounds are made several times per shift. The following list outlines items included in an inspection round. The sudden drop in level or increased use of oil by any piece of equipment is investigated as a possible source of oil loss.

1. Check tanks for:

- drip marks
- discoloration
- signs of corrosion
- cracks in insulation

2. Check containment berms for:

- cracks, erosion, or signs of settling
- Discoloration
- standing oil or water with an oil sheen
- localized woody vegetation

3. Check piping systems for:

- droplets of oil
- discoloration
- signs of corrosion
- bowing pipe between supports
- evidence of oil leakage at valves, seals, joints, etc.

2.2.1.4 - VOLUMES OF OIL INVOLVED

The worst case discharge for wharf transfer operation volumes has been calculated using the formula listed below:

$WCD = ((\text{Max Discovery Time} + \text{Max Shutdown Time}) * \text{Max Flowrate}) + \text{Line Drainage}$

$WCD = ((10 \text{ minutes} + 5 \text{ minutes}) * 117 \text{ Barrels/Minute}) + 400 \text{ Barrels}$

$WCD = 2150 \text{ Barrels}$

The discharge volumes for the Marysville Terminal Facility are as follows:

Worst Case Discharge: 2150 barrels No.2 and No.6 specification used oil

Maximum Most Probable: 215 barrels No.2 and No.6 specification used oil

Average Most Probable: 22 barrels No.2 and No.6 specification used oil

2.2.2 - SPILL MITIGATION PROCEDURES

The Marysville Wharf Oil Transfer Manual lists specific procedures to be followed in transferring oil from vessels. This section of the plan will detail procedures to be followed in the event of an emergency under the following scenarios; 1-failure of manifold, unloading arm, or transfer hose; 2-tank Overfill; 3-piping rupture; 4-piping Leak; 5-Explosion and/or fire; 6-equipment failure. A series of checklists has been developed for all possible oil transfer operations. These checklists assist operators in performing oil transfers and reduce the risk of an oil spill. These checklists are used in conjunction with the Marysville Terminal Facility operational procedures listed on the following page.

Oil Movement

<u>Checklist No.</u>	<u>Operation Description</u>
Oil Movement Log	Hourly Tank Levels During All GWEC Pumping Operations
1	No.2 Oil to GWEC - Truck Unloading and Degelling Pump
2	No.2 Oil Truck Unloading to Cutter Tank
3	Residual Oil Pumping to GWEC From Residual Oil Tank
4	Residual Oil Tank Hot Oil Recirc (GWEC Pipeline in Service)
5	Residual Oil Pumping to GWEC From Metering Tank
6	Barge Unloading to Metering Tank
7	Barge Loading From Metering Tank
8	Residual Oil Tank Hot Recirc (GWEC Pipeline Shut Down)
9	Barge Loading From Metering Tank and Residual Oil Tank
10	Barge Loading From Residual Oil Tank
11	Residual Hot Oil Recirc From Metering Tank thru Wharf Loop
12	Residual Oil Transfer From Metering Tank to Residual Oil Tank
13	Transfer - Residual Oil Tank to Metering Tank via Wharf Loop
14	Evacuation of Trestle Pipeline
15	Barge Unloading Operation at Wharf
16	Barge Unloading to Residual Oil Tank
17	Barge Unloading of No.2 Oil to Cutter Tank
18	Barge Hose Draining

2.2.2 - SPILL MITIGATION PROCEDURES (cont.)

Operational

<u>Procedure #</u>	<u>Procedure Description</u>
1	Meter Prover Operation
2	Portable Prover Hook-up
3a	Barge Off-Loading - Direct to Residual Oil Storage Tank
3b	Barge Off-Loading - Direct to Metering Tank
3c	Barge On-Loading Operations
4	Trestle Pipeline Evacuation
5	Truck Un-Loading Operation for No.2 Oil
6	Custody Transfer - Meter Ticket
7	Sampler Operation
8	Hand Line Gauging - Innage Method
9a	No.2 Oil System Operation
9b	Degelling Operation
10	Tank Mixer Operation
11	Main Unit Operation For System Start-Up
12a	Heat Circulation - Residual Oil Storage Tank
12b	Heat Circulation - Metering Tank & 10" Off/On-Loading Loop
13	Emergency Shutdown Operation
14	Sump Pump Operation
15	Hourly OS and 7 A.M. Stock Report
16a	Pig Dispatching Operation for X-3 Launcher (to GWEC)
16b	Pig Dispatching Operation for X-1
16c	Pig Dispatching Operation for X-2
17a	Pig Receiving Operation for X-4 Receiver
17b	Pig Receiving Operation for X-1 Receiver
17c	Pig Receiving Operation for X-2 Receiver
18	Sending and Receiving Meters
19	Heat Tracing
20a	Transfer Metering Tank To Residual Oil Storage Tank
20b	Transfer Residual Oil Storage Tank to Metering Tank
21	Fire Protection (Foam System)
22	Mainline Heat Exchanger
23	Oil Water Separator System
24	System Schematics

2.2.2.1 FAILURE OF MANIFOLD

During all periods of off-loading, an operator is stationed on the wharf. The wharf operator is in constant communication with the barge operator and can instruct the barge to shut down if any oil loss is visually detected. Inspection rounds are made several times per shift and include checking the piping systems for droplets of oil, discoloration, signs of corrosion, bowing pipe between supports, evidence of oil leakage at valves, seals, joints, etc. In addition, motor operated valves MOV-1 and MOV-62, at each end of the trestle pipeline can be isolated in case of a trestle line leak. The first operator discovering a failed manifold could shut each valve electrically. It is estimated that these valves could easily be shut within five minutes of a hose failure. The wharf operator would then notify the Shift Supervisor who would activate the oil spill response plan.

Oil spilled within the wharf shelter would be captured and contained in a 170-gallon drain sump, equipped with a sump pump. The sump collects product and rainwater from oil transfer operations, hose connection drip pan, and drain valves. The sump pump transfers fluid back into the onshore loading pipeline through a 2-inch pipe that is bundled with the 12-inch insulated trestle pipeline.

Outside the wharf shelter a bermed hose containment exists this containment drains to the 170 gallon sump. Operations personnel will immediately deploy oil absorbent booms and pads to capture oil that reaches the river. The contracted OSRO would be immediately notified for more aggressive oil recovery strategies.

2.2.2.2 - TANK OVERFILL

The possibility of a spill occurring from a tank overfill is considered remote. During all periods of oil off-loading, operators are stationed at the Marysville Terminal Facility Control Room located east of the main oil tank. Inspection rounds are made several times per shift and include checking the tanks for drip marks, discoloration, signs of corrosion, or cracks in insulation. Containment berms are checked for cracks, erosion, or signs of settling, discoloration, standing oil or water with an oil sheen, localized woody vegetation.

In addition to operator rounds discharge detection monitoring is performed by automated leak detection devices. The Metering tank has a high-level switch that alarms at the wharf control panel and main control panel in the Terminal Control Room. The high alarm level is 38.5 feet (96.25% of capacity). The Metering Tank has a high-high level switch which closes the inlet valves to the tank and alarms at the main control panel in the Terminal Control Room. The high-high alarm level is 39.5 feet (98.75% of capacity).

The Main Storage Tank has a high-level switch that alarms at the wharf control panel and main control panel in the Terminal Control Room. The high alarm level is 30.5 feet (95.3% of capacity). The Main Storage Tank also has a high-high level switch that closes the inlet valves to the tank and alarms at the main control panel in the Terminal Control Room. The high-high alarm level is 31.5 feet (98.4% of capacity). The No.2 (Cutter) Storage Tank has a high-level switch that alarms at the wharf control panel and main control panel in the Terminal Control Room. The high alarm level is 30.5 feet (95.3% of capacity). The No.2 Storage Tank has a high-high level switch that closes the inlet valves to the tank

and alarms at the main control panel in the Terminal Control Room. The high-high alarm level is 31.5 feet (98.4% of capacity)

Any overfill of the Oil Tank, the Metering Tank, or the Cutter Tank would flow into the containment berms surrounding the tanks. The three tanks are surrounded by a clay lined earthen berm. Each of the three tanks is further segregated by a secondary clay lined berm. The berms are designed to contain 110% of the largest tank plus 25% of the remaining tanks at the site. The first operator discovering a tank overfill would immediately contact the wharf operator at the barge unloading station and order the transfer shutdown.

2.2.2.3 TANK FAILURE

The possibility of a tank failure also is considered remote. In addition to operator rounds described above, discharge detection monitoring is done by automated leak detection devices.

The Main Storage Tank and the Metering Tank have low level switches which stop the tank mixer and alarms on the main control panel in the Terminal Control Room. The low alarm level is 4.0 feet. They also have a low-low level switch that stops barge loading, tank to tank transfer, and blending pumps and alarms on the main control panel in the Terminal Control Room. The low-low alarm level is 3.0 feet.

The Cutter Tank has a low level switch stops the tank mixer and alarms on the main control panel in the Terminal Control Room. The low alarm level is 4.0 feet (12.5% of capacity). The Cutter Tank also has a low-low level switch stops the barge loading, tank to tank transfer, and blending pumps and alarms on the main control panel in the Terminal Control Room. The low-low alarm level is 3.0 feet (9.4% of tank capacity).

A failure of any of the three tanks would result in oil spilling into the clay lined berms described above. If a tank leak is discovered, the operator will immediately notify the wharf operator (if a transfer is in progress) and order the transfer stopped. The operator would then contact the Shift Supervisor who would activate the oil spill response plan. The operator will then begin an inspection of the berm to ensure there is no leakage of oil to the surrounding environment. Operators will shutdown sources of ignition or heat in the immediate area of a spill to prevent the possibility of fire.

2.2.2.4 & 2.2.2.5 - PIPING LEAK & RUPTURE

In the event of a piping rupture during an oil transfer, the person discovering the spill will immediately contact the Shift Supervisor who will initiate the oil spill response plan. The wharf operator will immediately shutdown transfer operations and close line sections to relief pressure and reduce line drainage. Care should be taken to isolate the oil from ignition sources.

2.2.2.6 - FIRE AND/OR EXPLOSION

The Marysville Terminal Facility fire protection procedure is included on the following pages. This procedure has seven pages.

2.2.2.7- FAILURE UNLOADING ARM, OR TRANSFER HOSE

Should a spill occur due to failure in the unloading arm or transfer hose, the operator in charge and the barge tankerman must shutdown and isolate the system at once. The wharf operator will close MOV-1 and MOV-62 to isolate the wharf from the terminal pipeline and Barge. The barge tankerman will shutdown the transfer pumps.

The wharf operator must notify the operator at the terminal who will in turn notify the Operating Authority. If the spill has contacted the water the Operating Authority will start contacting the necessary individuals within 15 minutes as outlined in Power Plant Order No. 222.

Oil spilled within the wharf shelter would be captured and contained in a 170-gallon drain sump, equipped with a sump pump. The sump collects product and rainwater from oil transfer operations, hose connection drip pan, and drain valves. The sump pump transfers fluid back into the onshore loading pipeline through a 2-inch pipe that is bundled with the 12-inch insulated trestle pipeline. Outside the wharf shelter a bermed hose containment exists this containment drains to the 170 gallon sump.

Operations personnel will immediately deploy oil absorbent booms and pads to capture oil that reaches the river. The contracted OSRO would be immediately notified for more aggressive oil recovery strategies.

2.2.2 - SPILL MITIGATION PROCEDURES (cont.)

Operational

<u>Procedure #</u>	<u>Procedure Description</u>
1	Meter Prover Operation
2	Portable Prover Hook-up
3a	Barge Off-Loading - Direct to Residual Oil Storage Tank
3b	Barge Off-Loading - Direct to Metering Tank
3c	Barge On-Loading Operations
4	Trestle Pipeline Evacuation
5	Truck Un-Loading Operation for No.2 Oil
6	Custody Transfer - Meter Ticket
7	Sampler Operation
8	Hand Line Gauging - Innage Method
9a	No.2 Oil System Operation
9b	Degelling Operation
10	Tank Mixer Operation
11	Main Unit Operation For System Start-Up
12a	Heat Circulation - Residual Oil Storage Tank
12b	Heat Circulation - Metering Tank & 10" Off/On-Loading Loop
13	Emergency Shutdown Operation
14	Sump Pump Operation
15	Hourly OS and 7 A.M. Stock Report
16a	Pig Dispatching Operation for X-3 Launcher (to GWEC)
16b	Pig Dispatching Operation for X-1
16c	Pig Dispatching Operation for X-2
17a	Pig Receiving Operation for X-4 Receiver
17b	Pig Receiving Operation for X-1 Receiver
17c	Pig Receiving Operation for X-2 Receiver
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24	System Schematics

2.2.2.1 FAILURE OF MANIFOLD, UNLOADING ARM, OR TRANSFER HOSE

During all periods of off-loading, an operator is stationed on the wharf. The wharf operator is in constant communication with the barge operator and can instruct the barge to shut down if any oil loss is visually detected. Inspection rounds are made several times per shift and include checking the piping systems for droplets of oil, discoloration, signs of corrosion, bowing pipe between supports, evidence of oil leakage at valves, seals, joints, etc. In addition, motor operated valves MOV-1 and MOV-62, at each end of the trestle pipeline can be isolated in case of a trestle line leak. The first operator discovering a failed manifold, off-loading arm, or transfer hose could shut each valve electrically. It is estimated that these valves could easily be shut within five minutes of a hose failure. The wharf operator would then notify the Shift Supervisor who would activate the oil spill response plan.

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2.2.2.4 & 2.2.2.5 - PIPING LEAK & RUPTURE

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2.2.2.6 - FIRE AND/OR EXPLOSION

The Marysville Terminal Facility fire protection procedure is included on the following pages.

This procedure has seven pages.

FIRE PROTECTION

The fire protection system is divided into four systems: The first being the individual extinguishers located at certain points at the Wharf and Tank Farm. Next is the water system. Next to the foam system. Last, the some detectors.

A. Individual extinguishers

1. Wharf

- a. The Wharf has all ansul extinguishers located at: Wharf control building, the dolphin south of control building, the dolphin north of control building and at dolphins 2,3, and 4.

2. Main control building

- a. The control building has all the ansul extinguishers located: outside door on the west wall. South wall inside control building. East wall near bathroom. Battery Room. Switchgear room east wall. Switch gear room west wall. Switchgear room north wall. Outside east door switch gear room.

3. Foam Building

- a. The foam house has two ansul and one multi-purpose 18 pound located: An ansul extinguisher inside the foam house door. An ansul on the north wall inside the foam house. An eighteen pound multi purpose at the oil sample table.

4. Pump Stations

- a. Pump stations have both ansul and CO2 extinguishers located: an ansul at the main line pumps. A CO2 at the booster pumps. A CO2 at the tank heaters. An ansul at the transfer pumps. A CO2 at the # 2 truck unloading station.

B. The Water System

1. The water system is fed by four vertical turbine pumps (numbered 9,10,11 & 12) each rated at 2,400 G.P.M. with 246 T.D.H. with 300 H.P., 1760 R.P.M. – 4800 Volt vertical motor. Pumps discharge into a 20" O.D. line which goes underground to the tank farm foam house. One 10 ½ O.D. laterial take off from this line runs to the wharf area supplying 1,000 G.P.M. of water through a stop valve FS-15 to the hydrant at the top of the hill (#2 hydrant) then to the hydrant at the shore line (#1 hydrant).

FIRE PROTECTION

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2. When the 20" main comes up in the foam house there are three take offs from the 20" main.

a. One goes to valve GB-29 which is the water supply to the foam proportioning pump to the metering tank and cutter stock tank and tank farm hydrants through MOV55.

b. Another takeoff goes to valve G.B. 40 which is the water supply to the foam proportioning pump to storage tanks one and two if it is built in the future.

c. The last take off goes through MOV54 which is the water source valve to the hydrants at the tank farm. You cannot put water and foam to the hydrants at the same time. The hydrants are:

1. #3 S.W. corner of berm
2. #4 S. side of berm
3. #5 W. side of berm
4. #6 N.W. side of berm
5. #7 N.E. side of berm
6. #8 E. side of berm near bulldozer house.
7. #9, #10 & #11 will be installed if tanks 2 & 3 are built.

C. The Foam System

The foam portion of this fire protection system is an automatic/manual system in accordance with National Fire Protection Association Standard No.11 – Foam Extinguishing System Utilizing Air-O-Foam 3% regular liquid with balanced proportioning as provided on Detroit Edison P.O. CDECO-422 by:

National Foam System Inc.
Job No. 4-6577-02
150 Gordon Drive
Lionville, Pennsylvania 19353
Phone: 215-363-1400

Each mode of operation must be clearly understood by all operators to provide the optimum fire protection the system will provide for the protection of life and property.

The system is limited only by the amount of foam solution existing in the liquid storage tank at the foam building or that stored on site and protected from temperatures below 20° F and above 120° F since the abundant water supply from the St. Clair River is practically unlimited.

FIRE PROTECTION

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Within the foam building the 20" water supply line splits into the following components:

1. One 8 ¾" O.D. line-water flows through valve MOV54 into the hydrant header which supplies each of 6 and possibly 9 (if tanks 2 and 3 are installed) hydrants with 1,000 G.P.M. at 150 psi at various locations on the dike or berm perimeter surrounding the tanks.
2. One 12 ¾" O.D. line – water flows through solenoid operated valve No. GB-40 and into ratio flow proportioner RF-800. Here the water is mixed with the foam liquid from the 7,500 gal. foam liquid tank through the pump suction valve No. 1 by the foam liquid pump and discharged through a check valve and gate valve #7 into RF-800. Balanced pressure regulation is obtained by way of the diaphragm valve for proper mixing. Mixture of foam liquid and water flow into the following tank diluted foam headers as follows:
 - a. Storage Tank #1(300' diameter X 32' high) diluted foam liquid flows through MOV-51 at 8,051 G.P.M. at 150 psi into 18" O.D. header with fourteen 6" laterals, each with a butterfly valve (BF-4 through BF-17) and upward to the respective fourteen foam makers located on the shell equally spaced near the tank top perimeter. At this point the diluted foam liquid is mixed with air. A change in state takes place and the liquid expands into foam which discharges through the tank shell into the tank interior along the wall and onto the top surface of the stored liquid (#6 residual oil) to combat an existing fire with its smothering, cooling and blanketing effect.
 - b. Storage Tank #2 (Future) 300' diameter X 32' high same as "a" above except diluted foam flows through MOV-52 into an 18" O.D. header with 14-6" laterals, each with a butterfly valve (BF-18 through BF-31).
 - c. Storage tank #3 (future) 300' diameter x 32' high diluted foam liquid should flow through MOV-53 valve. Butterfly valve numbers will be assigned at that time.
3. One 6 ¾" O.D. line – water flows through solenoid operated valve No. Gb-39 and into ratio flow proportioner RF-120. Here the water is mixed with the foam liquid in a similar manner as described in part 2 above except through gate valve No.8 into RF-120. Mixture of foam liquid and water flow is divided into the following flow paths:
 - a. 8 ¾" O.D. Hydrant Header-diluted foam liquid flows through MOV-55 at 388 G.P.M. at 150 psi into common water supply hydrant header. Water or diluted foam liquid will be available at the present six tank hydrants. Also this header can be extended if tanks #2 and #3 are added in the future.
 - b. Metering tank 110' diameter X 40' high diluted foam liquid flows through MOV-56 at flow rate 1,020 G.P.M. at 150 psi and splits through butterfly valves BF-1and BF-2 to each of the two respective foam makers located on the tank shelf, diametrically opposed and near the top tank perimeter. A change of

FIRE PROTECTION

Page 4

state takes place and the liquid expands into a foam which discharges through the tank shell into the tank interior and onto the top surface of the stored oil.

c. Cutter Stock Tank 60' diameter X 32' high — diluted foam liquid flows through MOV-57 at flow rate of 323 G.P.M. at 150 psi and one foam maker similarly to "b" above into the tank interior and onto the top surface of the stored (#2) oil. (No BF valve on this line).

WARNING

Oil Storage tank fires are sometimes caused from lightning strikes during electrical storms. The fire could be preceded by an explosion of the hydrocarbon vapors above the liquid level but still confined within the tank. Such an explosion can blow the cone roof completely from the tank, it may increase the difficulty of extinguishing the fire that may ensue, because it would add an additional hot surface which could prolong a fire.

Oil tank fires have a peculiarity of "bail over". This seems to occur more often with crude oil than other types of oil. However, personnel must be aware that this "bail over" can happen, and would belch a large volume of hot oil into the berm area. The hot oil can then splash some distance, endangering personnel in the near vicinity.

If the roof is blown from a tank, the thermistar detectors would probably become inoperable, and the manual method of initiating foam flow must be employed.

Design criteria is based upon a minimum liquid foam delivery to the protected surface of 10 G.P.M. per square foot of area. The number of Rockwood foam makers on the tanks conforms with 5,000 square feet of protected surface area for each outlet in which expansion takes place by foam water liquid mixing with the air.

Foam liquid storage tank capacity is 7,500 gallons.

Calculation:

Foam application time = Foam tank capacity

Foam pump output

= 7,500 gallons

275 G.P.M.

= 27.3 minutes*

The above calculations show that a liquid foam stored in the foam liquid storage tank would be depleted in about 27 minutes. This could be extended by refilling the tank with additional foam liquid which may be stored on site. Otherwise, this is the operating time limitation of the foam system.

FIRE PROTECTION

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* Disregards pressure drop effect in line

The foam portion for all tanks is initiated by thermistar sensors which detect a fire by sensing temperature with continuous monitoring. These detectors annunciate alarms for the tanks as follows:

- | | |
|---------------|--------|
| A. Pre -alarm | 250° F |
| B. Alarm | 325° F |
| C. Fire | 400° F |

If alarm comes in switch to second sensor if fire is still indicated, allow system to proceed.

Interlocks are incorporated in the fire alarm circuitry. A fire alarm will sound when one of many detectors sense a temperature of 400° F. If the circuitry has acknowledged the lower alarms previously then the fire alarm sequence will automatically be initiated immediately. Expanded foam will be delivered to the location automatically, provided the butterfly valves are in the "open" position for the related tank in which a fire has been detected, otherwise a one-minute delay is introduced before foam will be delivered to the fire. This one minute period allows the operator to appraise the situation and detain foam release to the fire area. The operator may extend the delay period by depressing the "reset" push button on the control panel for the appropriate tank followed by "trip" button. Also, the operator may prevent any more delay by depressing the "trip" button on the control panel for the appropriate tank. Also the "Internal Tank Fire Detector Panel" there is at the top, a square block "abort" button, a delay of two minutes can be introduced also by pressing the abort button.

Hydrant foam and water supply are only actuated manually. Upon verbal request, the operator depresses "trip" push button on the control panel for the appropriate fluid flow to the hydrants – foam or water, but not both simultaneously. Thereafter, the foam system is automatic with the exception of opening the hose nozzle which the fire fighter will do manually to direct the foam stream onto the fire. To supply water to the hydrants, the "trip" automatically annunciates alarms, lights and energizes one of four water supply pumps (P-9 through P-12) located in the condenser room.

Shut Down Procedure

1. Depress "Reset" push button located at the control panel for the appropriate system. This will restore that system to standby status.
2. Manually open the appropriate solenoid operated valve, if not already open. Numbers GB-39 and GB-40.
3. Allow water to flow through all devices or equipment in system section being shut down. Flushing is to continue until clear water is observed at outlet end.

FIRE PROTECTION

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4. Return all valves to their normal position.
5. Replenish supply of Air-O-Foam 3% regular liquid in foam liquid storage tank (7500 gallons) and at one-site storage area (Foam House).

Failure of Diaphragm Valve

In the event this valve fails during an emergency operation, close the two #4 valves and open valve #5. See drawing of Foam skid. Foam system will now be in manual operating mode. Regulate valve 5 to hold equal

pressure readings on duplex pressure gauge, located on discharge side of the foam liquid pump in the foam building. This will again permit the ratio flow proportions RF-800 and RF-120 to properly mix the foam liquid and water.

Circulation Procedure for Liquid Foam Pump

Every four weeks it is necessary to circulate the foam in the liquid foam pump to prevent gelling of liquid. Proceed as follows:

1. The foam concentrate liquid should be circulated through the liquid pump for about 30 seconds.
2. Open valves #1, #2, #3, & #4 (See drawing of foam skid).
 - #1 – Suction Valve
 - #2 – Return or Discharge Valve
 - #4 – Inlet and Outlet Valves for Diaphragm Valve
3. Close valves #5, #7, #8, X, Y
 - #5 – Bypass around diaphragm valve
 - #7 – M.O.V. for main tank foam supply.
 - #8 – M.O.V. for metering & cutter tank foam supply
 - X – Inlet Flush connection
 - Y – Discharge flush connection
4. Turn starter selector switch "to hand" *position. This will start the pump. Allow the pump to run for about 30 seconds.
5. Turn starter selector switch back to the "automatic" *position.

FIRE PROTECTION

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*Switch is located in foam house near the foam pump, mounted on a grey control box.

6. Return valve line-up to normal position. All valves should be closed except valves #1, #2, #4, #6.

System Malfunction

If the circuit trouble alarm, the pre-alarm or the 325° F alarm sounds, but the system does not proceed to the fire alarm:

1. The operator can silence the alarm by pushing the ACK button on the annunciator.
2. The alarm light on the annunciator will stay on until the problem that caused the alarm is resolved.

Control Room Procedure in Case of Fire

If the second sensor system also indicates a fire, the operator should allow the system to proceed automatically.

If the second sensor system does not indicate a fire, the operator should press the reset button and investigate the problem.

After Checking the alarm signal, the operator should:

1. Stop the flow of oil into and/or out of the affected tank.
2. Dial 911 to contact the Marysville Fire Department. Give the dispatcher the following information:
 - a. Name
 - b. Location, Marysville Oil Storage Facility
 - c. Type of fire
 - d. Which tank the fire is in.

Do not hang up until the fire department has all the information they need.

3. Contact the Shift Supervisor via Marysville Power Plant #250

If low pressure alarm for General Service Header that applies the foam system sounds:

1. Start additional general service pumps from control center.
2. If all pumps are already in service, contact Marysville Power Plant (#227) and have them cut back on their general service water usage so more water can be diverted to the fire.

D. Smoke Detectors and Alarms

The smoke detector system consists of: 6 smoke detectors, 2 alarm bells and one control panel.

1. Smoke detectors

There are 6 smoke detectors. One is in the control room. Another is in the bathroom. There are 2 in the switch-gear room and 2 in the foam house.

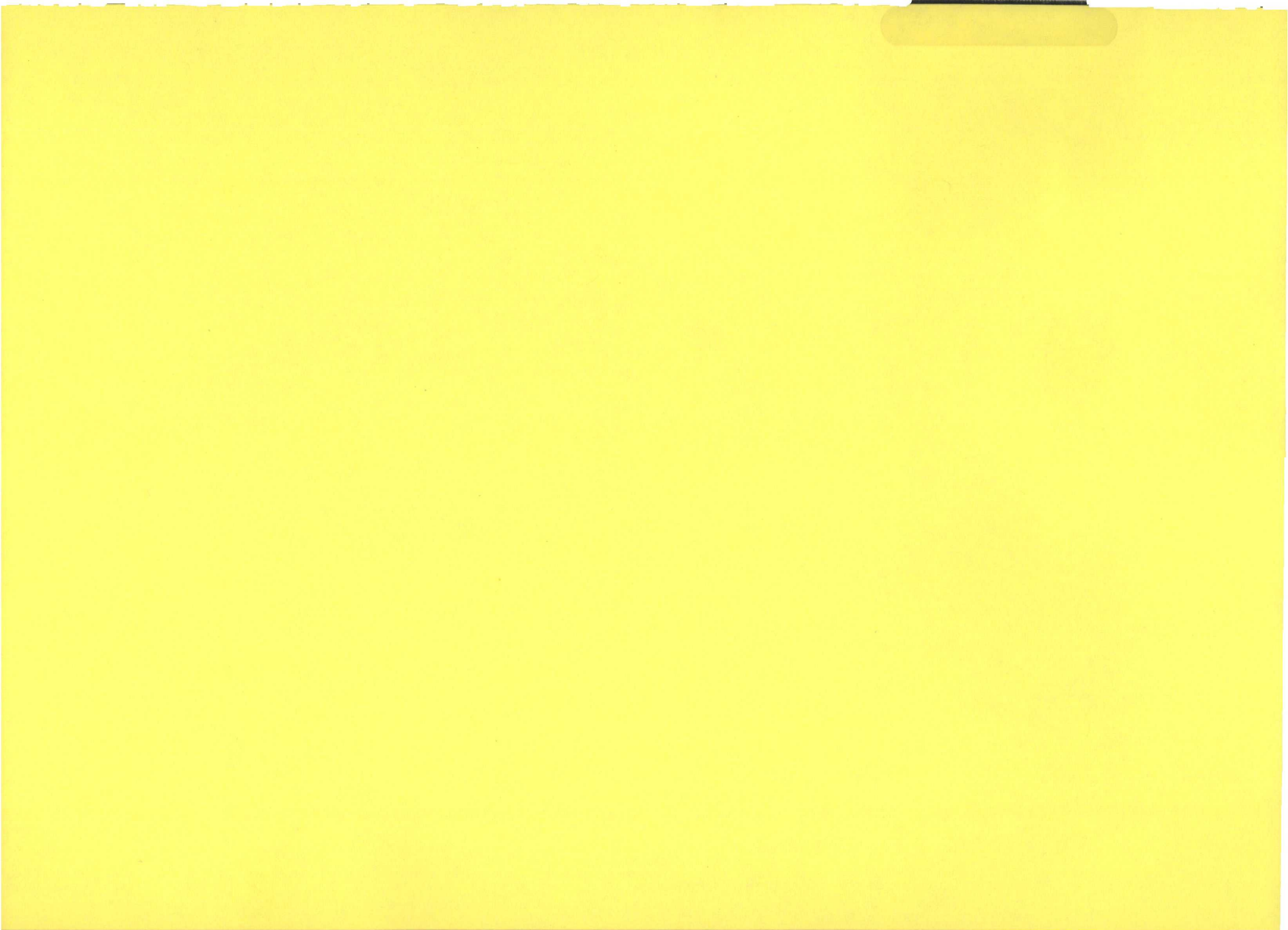
2. Alarm Bells

There is an alarm bell in the switch gear room and one in the foam house.

3. Control Panel

The control panel is located in the control room on the south wall just east of the switch-gear room door. On the front of the panel there is a reset button, an alarm silence switch and a trouble light.

If an alarm comes in check the switch gear room, bathroom and the foam house for fire. If there is no fire go to the control panel and push the reset button if this does no good put the alarm to silence position, open the panel door and check fuses (small, car type). There are spares in the panel.





Marine Pollution Control Corp.

8631 West Jefferson Ave., Detroit, MI 48209-2691

Phone: 1-313-849-2333 ■ Fax: 1-313-849-1623

Web: www.marinepollutioncontrol.com ■ E-mail: info@marinepollutioncontrol.com

Via email: nerudai@dteenergy.com

December 11, 2009

DTE Energy

Marysville Powerplant - Marysville, MI

St. Clair Powerplant - St. Clair, MI

Greenwoods Energy Center

Fermi 2 Powerplant - Frenchtown Township, MI

Re: OSRO/PREP Compliance - MPC Certification for 2009

Dear Mr. Neruda:

This letter acknowledges that Marine Pollution Control (MPC) is an OSRO classified by the USCG for the Buffalo, Chicago, Cleveland, Detroit, Duluth, Milwaukee, Sault Ste. Marie, Toledo, Pittsburgh, Huntington, Louisville, Memphis, Paducah, and St. Louis COTP Zones and has successfully deployed a representative sample of our spill response equipment during 2009, as required by the National Preparedness for Response Exercise Program (PREP). The balance of our spill response equipment not deployed has been properly inspected, maintained and documented to be in good operating condition. Supporting documentation of MPC's Equipment Deployment Exercise and Maintenance Program is kept at our main office located at 8631 W. Jefferson, Detroit, MI 48209. This letter should be maintained as part of your OPA'90 compliance documentation.

MPC also acknowledges that our emergency response personnel have received the necessary training to safely and effectively respond to oil spills. Personnel training records are retained at MPC headquarters in Detroit and are available for review upon request.

This letter acknowledges that DTE Energy has "ensured, by contract or other approved means the availability of private personnel and equipment necessary to respond, to the maximum extent practicable" to an oil spill within the required planning timeframes and specific geographic regions as represented above, and based on personnel and equipment availability. This certification gives DTE Energy the right to list MPC within its Facility Response Plan for the Marysville, MI facility as listed named in the current MPC/DTE Energy OSRO Membership contract.

Thank you for the opportunity to service DTE Energy in its OPA 90 compliance issues. If you have any questions or require further information, please give me a call at (313) 849-2333.

Sincerely,

William Hazel

Marine Pollution Control



Marine Pollution Control
8631 West Jefferson
Detroit, Michigan 48209 USA
313.849.2333 – 24/hr
313.849.1623 – facsimile
mpcenvir@aol.com

Operations Report

OSRO-Supported PREP Equipment Deployment Drill – September 30, 2009

DTE Energy St. Clair Powerplant
St. Clair, MI
St. Clair River

Scope

On September 30, 2009, Marine Pollution Control (MPC) participated in a PREP Equipment Deployment Exercise for DTE Energy (DTE) St. Clair Powerplant located on the St. Clair River. This operations report provides details of MPC's involvement in the exercise and serves as DTE's documentation of the exercise's effectiveness as required by OPA'90, in compliance with the PREP.

Deployment Exercise Activities

During the equipment deployment exercise, MPC provided the following personnel and equipment:

1 each	Project Supervisor
2 each	Equipment Operators
3 each	Recovery Technicians
1 each	Documentarian/Historian
2 each	Rapid Boom Deployment Boats (RA7 & RA8)
1 each	1,000' Boom Trailer
3 each	Operations Vehicles
1 lot	Communications Equipment and GPS Systems
1 each	Digital Camera

The purpose of this exercise was to deploy boom in configurations that conform to operational requirements specific to the DTE facility's marine environment.

During the exercise, MPC personnel reviewed boom deployment and spill recovery strategies, reviewed security procedures for the facility and the waterway, made assessments of resource requirements, considered possible spill fates and trajectories, and identified resources within the immediate area that are environmentally or economically sensitive (and should therefore be protected during a spill event).

Approach to Boom Deployments

Boom deployment activities were conducted on the St. Clair River, which may be accurately classified as a fast water environment (i.e., current exceeding 1 knot). A primary objective of the booming operations was to address the requirements of fast water environment containment and recovery strategies. All operations (both actual deployments and analysis and surveys to facilitate future operations) were structured to address the spill response objectives identified in DTE's Facility Response Plan (FRP). A secondary important objective of the exercise was to examine potential booming deployment locations as identified for the waterway in newly developed response plan

documents promulgated by USCG Sector Detroit personnel (i.e., draft Geographic Response Plan data sheets or "GRPs"). The GRPs identify potential locations where river currents and shoreline access points are available, resulting in good areas to implement spill response operations on the river. During this exercise containment boom was deployed at two identified sites (Locations #7 and #8), and a third location (Location #6) was inspected and evaluated based on conditions encountered and lessons learned at the first two locations. The USCG GRPs (and additional baseline data used to develop those GRPs from the GLOS website) are included in appendix A of this report. The experiences gained during this exercise will be relayed back to USCG personnel to be included in the final versions of the GRPs.

Summary of PREP Core Components Addressed

This OSRO-supported Equipment Deployment Exercise served to familiarize MPC personnel with the conditions likely to be encountered during a spill scenario from the DTE St. Clair facility. Additionally, it provided an opportunity to put into practice those strategies which would likely be utilized during a spill event on the St. Clair River, increasing MPC's and DTE's preparedness to mount an effective and timely response there. The Equipment Deployment Exercise demonstrates DTE's compliance with the PREP requirements in the following areas of the Core Components section of the guidelines:

- #5 Assessment** The exercise provided the opportunity to develop effective assessment techniques for the deployment of equipment and personnel in the event of a spill event from the DTE St. Clair Powerplant Facility. The trajectory and fate of oil spilled from the facility was considered, and the deployment strategies that were enacted were chosen to address those considerations. The physical properties of the immediate marine environment (i.e. shorelines, local hazards, typical weather patterns, etc.) and their effects on mounting a response effort were likewise considered. The sensitivity atlas for the local area was consulted during the drill and responders identified environmentally and economically sensitive areas that would require protection during a spill response.
- #6 Containment** Containment boom deployment strategies were established during the exercise.
- #7 Recovery** Shore- and water-based recovery was simulated during this exercise (the boom configurations were designed to facilitate such recovery operations).
- #8 Protection** Protective booming configurations were considered during the exercise, and additional protective strategies were considered by the response technicians while deploying boom.
- #10 Communications** MPC successfully utilized their digital communications systems during the exercise and were able to make contact with the shore-side command element at the dock and with their home headquarters in Detroit.
- #13 Equipment Maintenance** All of MPC's response equipment, including that which was included in this exercise, is maintained to the equipment manufacturer's standards in accordance with the meaning and intent of the OPA'90 OSRO classifications requirements. MPC operates and maintains a complete communications suite, field administrations systems, and transport and support systems capable of supporting an extended response effort. Further documentation of this program is available to those response plan holders that designate MPC as their OSRO.

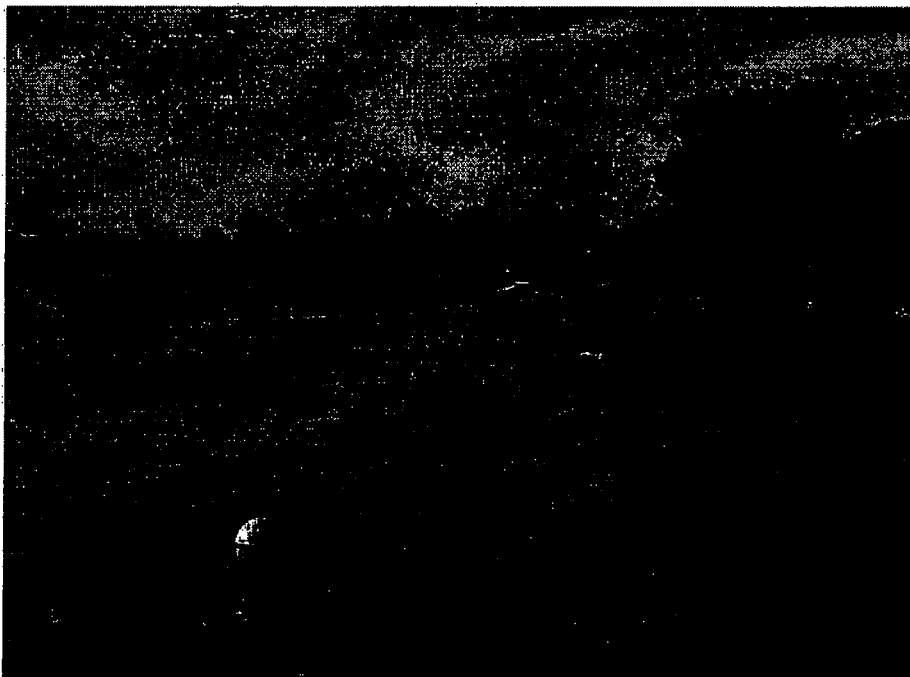
Operational Lessons Learned and Additional Recommendations

- Oil spill trajectories on the St. Clair River will be primarily influenced by both river current and wind conditions. Therefore, during an actual response both the current and wind conditions will need to be monitored on a continuous basis. During a large spill in this area in 2002 (on the Detroit River), oil migrated across the river channel to significantly impact the Canadian shore, and impacted Lake Erie 15 miles downstream. Responders should be aware of the potential that a spill in this area can migrate for significant distances in a short amount of time, and plan accordingly (i.e., muster resources downstream in anticipation of subsequent contamination and impact). This concept is a central objective of the USCG's GRP plan, and so as those documents mature and additional feedback is entered into them a solid response plan for this waterway should be the final result.
- Responders must be extremely cognizant and cautious of the local marine traffic, which includes a substantial amount of commercial and personal watercraft (especially during summer months).
- Responders must be aware of their limitations regarding deployment of equipment near international borders, and must comply with the law in this regard. Treaties for mutual response exist between the USA and Canada (CANUSLAK), but they should be put into motion by the applicable regulatory agencies (USCG, Immigration, Law Enforcement) in advance of cross-border response activities.
- Most containment and/or recovery points identified by the response technicians exhibited hazards to shore-side technicians (i.e. seawalls or rocky shorelines). In the event of a spill response, technicians working in these areas should pay particular attention to these conditions and should take steps to mitigate the hazards (i.e. working in teams of two, proper life jackets, etc.). Additionally, the waterway has numerous complex challenging structural installations (i.e., piers, etc.) and/or other obstructions that, once oiled, could prove difficult to remediate. Objects such as abandoned boats, piers, and culverts should be protected (if possible) to save time later.
- Boat handlers working near the shorelines must pay careful attention to the presence of submerged objects such as piers, seawalls, etc. to prevent injury to personnel and/or damage to equipment.
- **Fast Water Booming:** Fast water booming operations require highly skilled and trained response professionals to attain operational success. During this exercise boom encounter angles were altered between 30 and 15 degrees in order to evaluate the effectiveness of the configurations considering anchoring effectiveness and recovery effectiveness. When boom were set at 30 degrees from the angle of the shore the anchoring systems held the booms in position but significant entrainment at the booms was observed. The responders demonstrated this by observing floating leaves within the containment area; at 30 degrees these floating materials were observed passing beneath the booms. When the same booms were adjusted to the more appropriate angle of 15 degrees, floating leaves were captured by the boom (as would be the case with oil floating on the surface). To further explore effective techniques for booming in fast water currents, responders deployed two containment/collection booms in tandem, one immediately upstream of the first. This resulted in the first boom creating a breakwater in front of the second boom, a strategy for improving the containment capacity at the deployment site. This technique was rated as effective by the responders, who visually judged that the water surface within the area between the two booms was definitely slowed by the "current breaking" service provided by the upstream boom. In practice, oil which escaped the first boom due to entrainment would have a better chance of being captured by the second (downstream) boom as a result of this effect.

Photographic Figures



Connecting a containment boom to shore at GRP Location #8



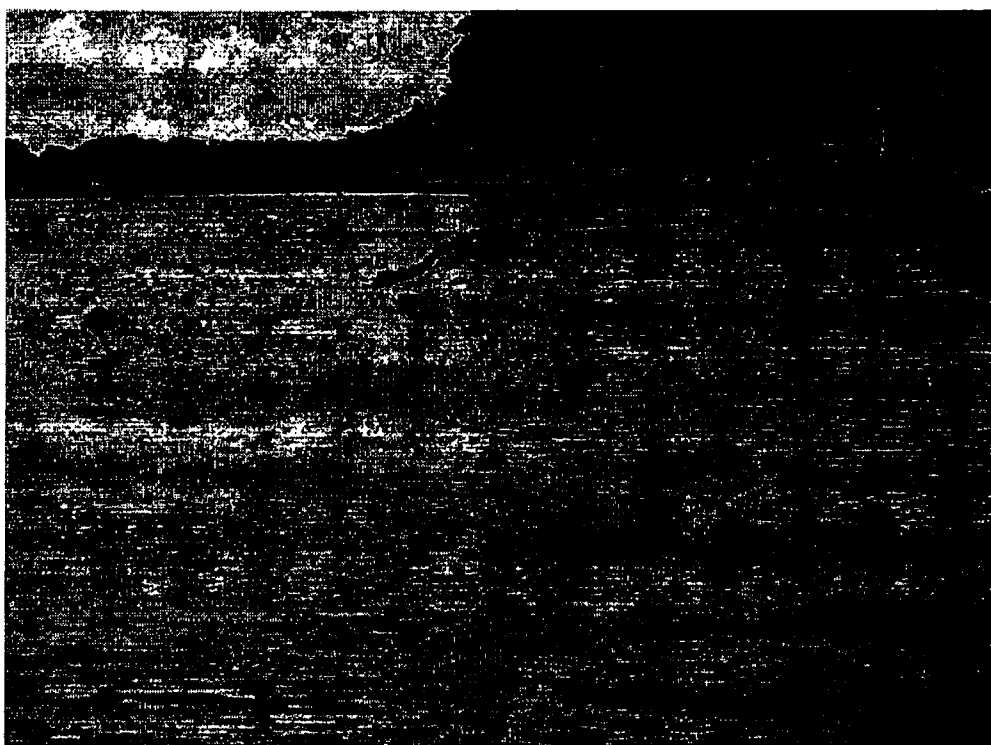
Twin containment/collections booms established parallel to each other at GRP Location #8, a fast water booming strategy demonstrated at the exercise



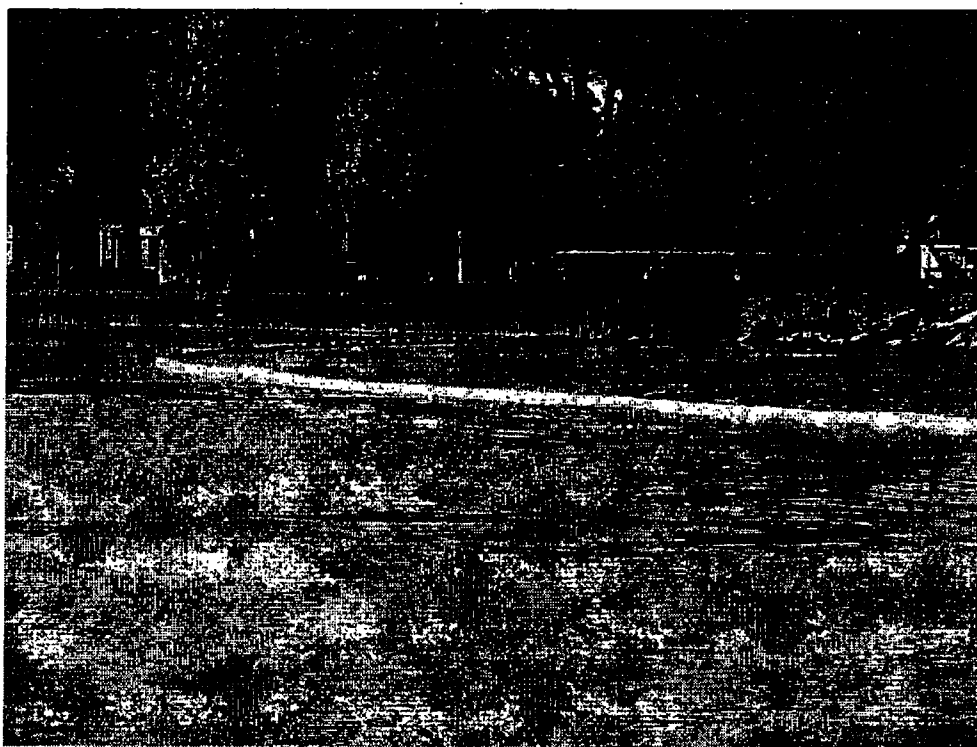
Another view of the "current breaking" twin boom configuration established during the exercise



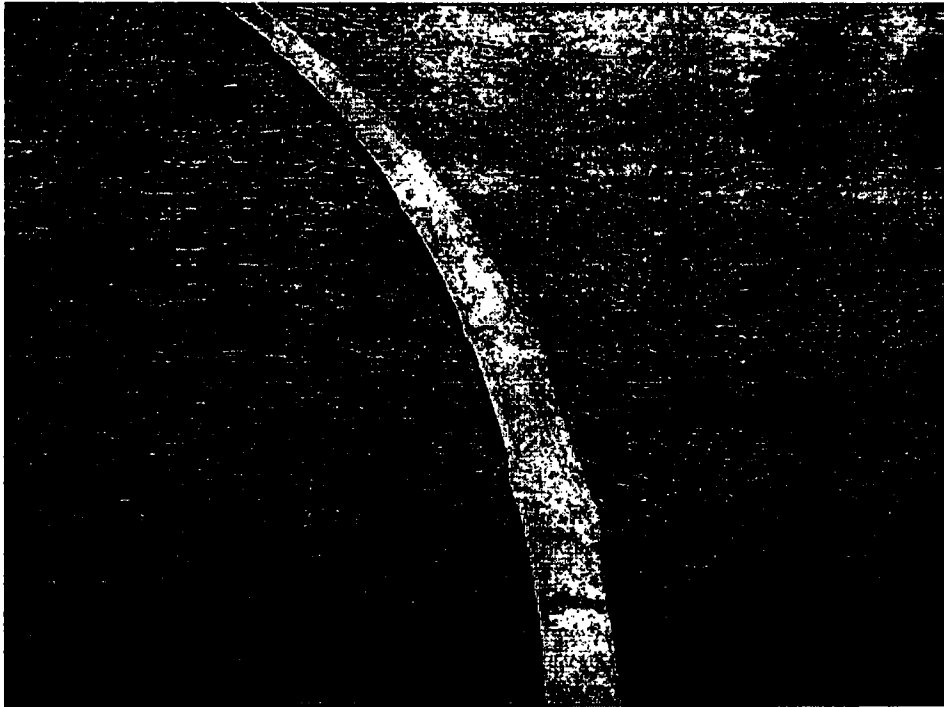
GPS position of the twin boom configuration established at GRP Location #8



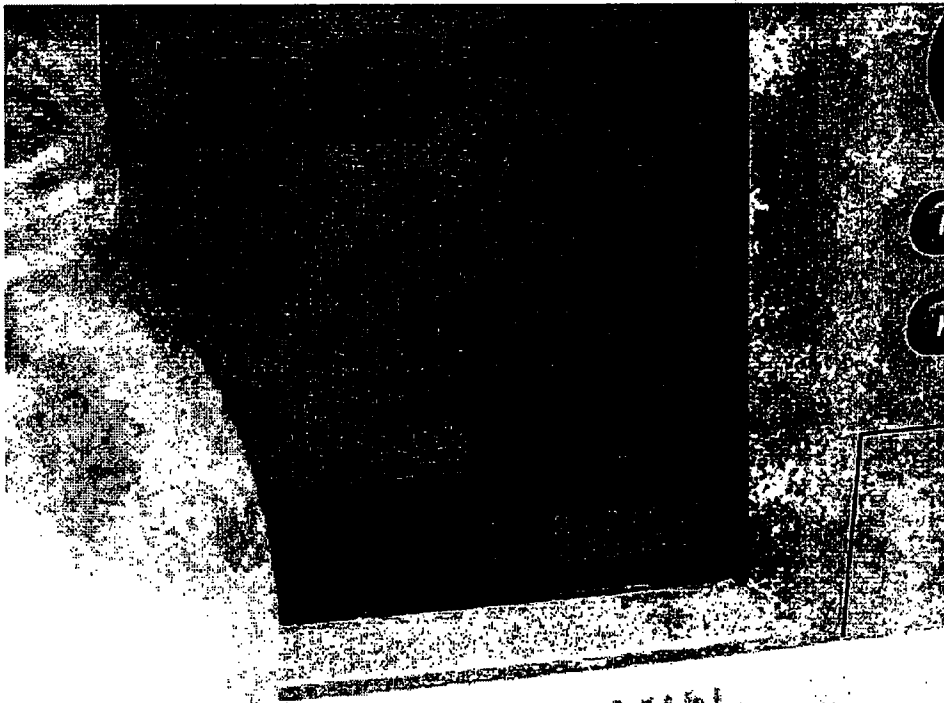
Containment/collection boom established at GRP Location #7. In this case shore connection was made at a seawall



Another view of the boom established at GRP Location #7.



Fast water current environments will place stresses on containment booms (and related equipment such as workboats) requiring extra attention to anchoring processes.



GPS at Location #7

Attachments

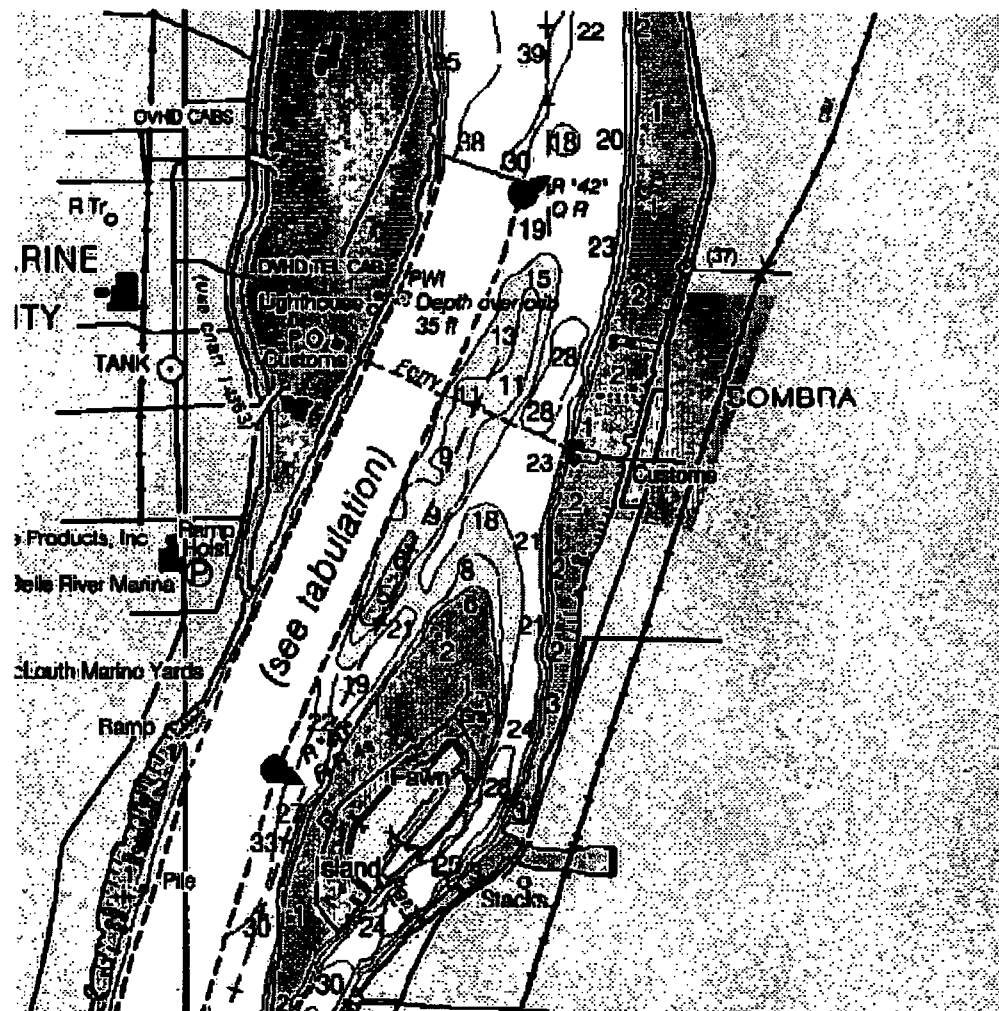
USCG GRPs (DRAFTS)

**Southeast Michigan Area Contingency Plan
Boom Deployment Location:**



Required Resources	
Amount x 75' - 114'	Anchor Line
1000'	Boom
2	Boats
	Hardware
2	Skimmers
6	Boat Operators
2	Laborers
1	Supervisors

Site / CP / Entrance Lat/Long	Boom #8: 42- 42.22N, 082- 29.95W
Location / Directions to site	Staging Area is South of Cross Street: M-29 & Thompson Dr.
Strategy Objective / First priority Boom Location	
Type of Shoreline / Habitat to be protected	
Wildlife / Resources at risk	N/A
Shoreline / Backshore access	Driveway to Parking lot
Staging / Recovery Area	Parking lot & Sand
Field Notes	Water Depth: 25' - 38' estimated; Anchor Line: 75' - 114'
OSRO ETA	

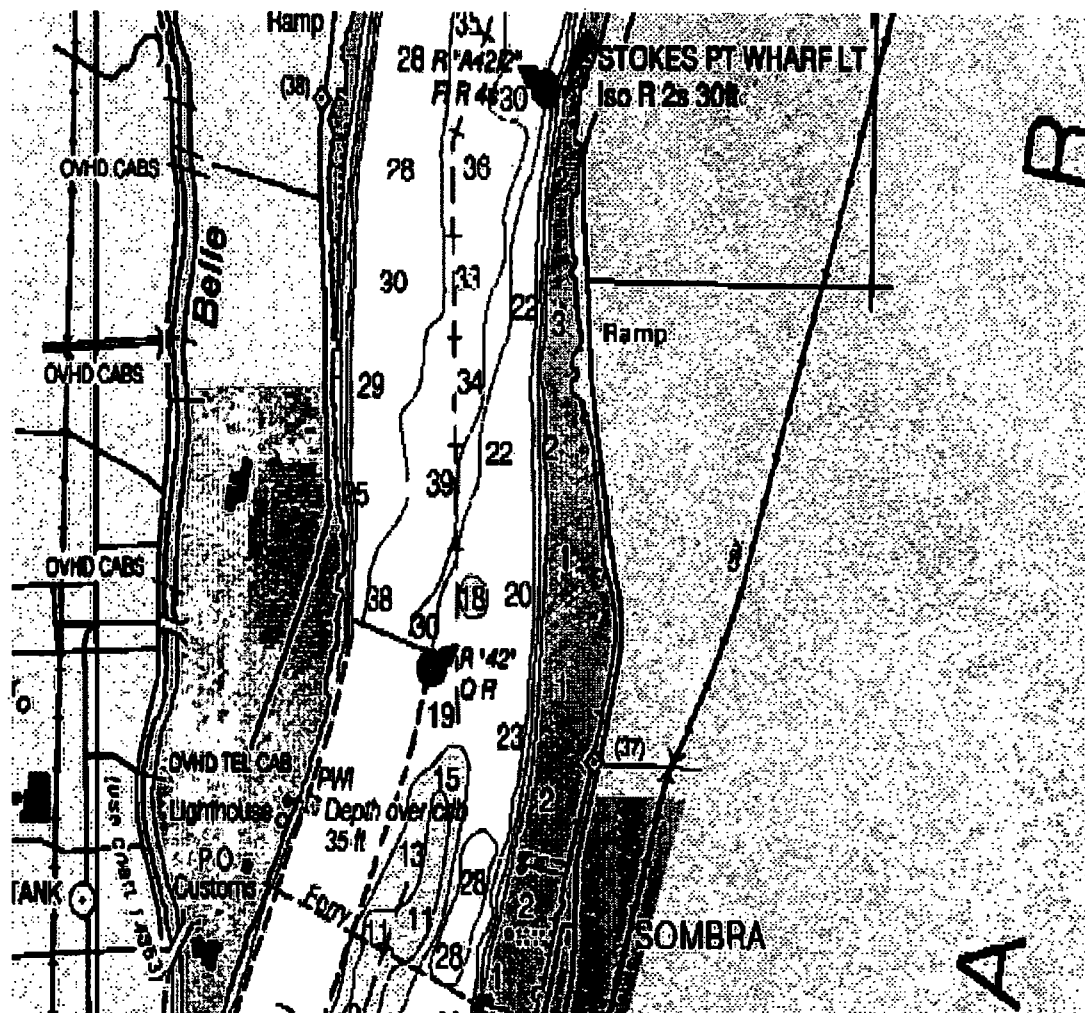


**Southeast Michigan Area Contingency Plan
Boom Deployment Location:**



Required Resources	
Amount x 75' - 117'	Anchor Line
1000'	Boom
2	Boats
	Hardware
2	Skimmers
6	Boat Operators
2	Laborers
1	Supervisors

Site / CP / Entrance Lat/Long	Boom #7: 42- 42.74N, 082- 29.60W
Location / Directions to site	Cross Street #1: S. Water St. & Union St. Cross Street # 2 S. Water St. & S. Main St.
Strategy Objective / First priority Boom Location	
Type of Shoreline / Habitat to be protected	
Wildlife / Resources at risk	N/A
Shoreline / Backshore access	Driveway to Parking lot
Staging / Recovery Area	Parking lot
Field Notes	Water Depth: 25' - 39' estimated; Anchor Line: 75' - 117'
OSRO ETA	

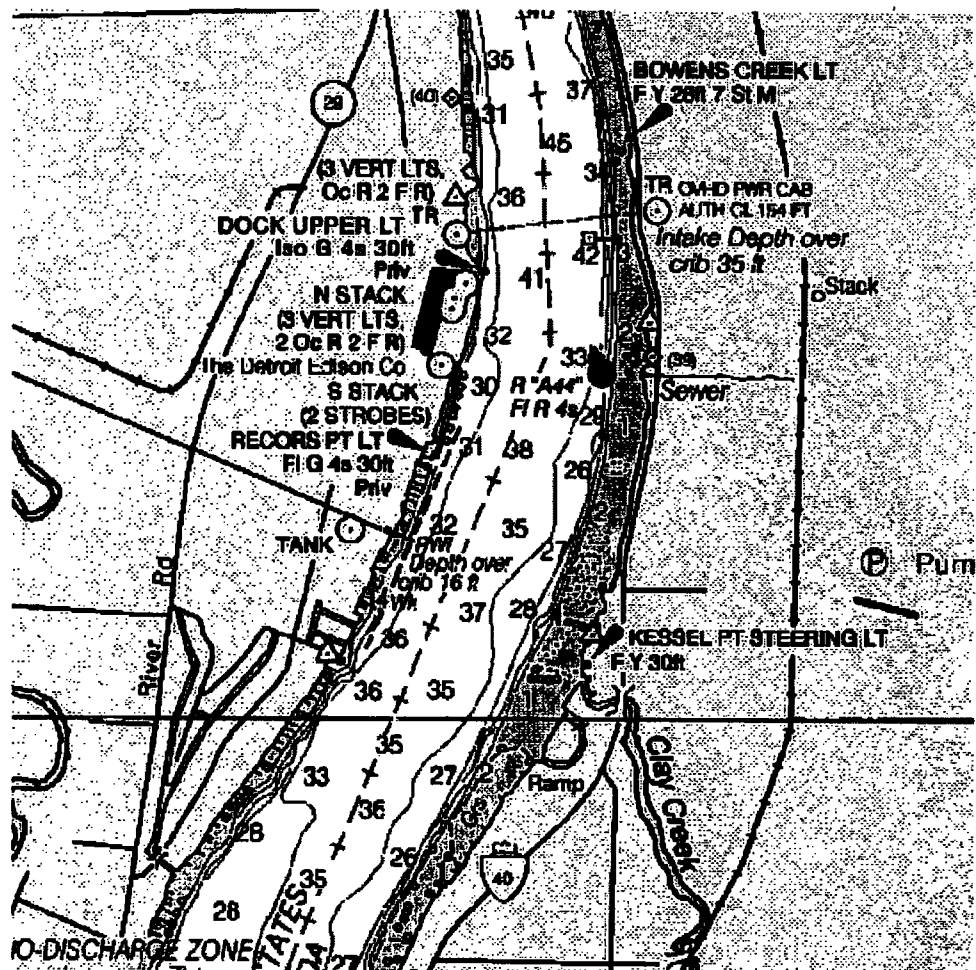


**Southeast Michigan Area Contingency Plan
Boom Deployment Location:**



Required Resources	
Amount x 90' - 144'	Anchor Line
1000'	Boom
4	Boats
	Hardware
4	Skimmers
12	Boat Operators
4	Laborers
1	Supervisors

Site / CP / Entrance Lat/Long	Boom #6: 42-45.54N 082-28.14W
Location / Directions to site	Cross Street #1: River Road (M-29) & Recor Rd., East China Cross Street #2: River Road (M-29) & Remer Rd., East China
Strategy Objective / First priority Boom Location	
Type of Shoreline / Habitat to be protected	
Wildlife / Resources at risk	N/A
Shoreline / Backshore access	Road to Parking lot
Staging / Recovery Area	Parking Log & Gravel
Field Notes	Water Depth: 30' - 48' estimated; Anchor Line: 90' - 144'
OSRO ETA	



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Updated February 12, 2007

MPC EQUIPMENT AND MATERIALS LIST

Vacuum Tankers & Vacuum Trucks

VT-452	4,500 gal 1988 Huber Diesel, mild steel, hoist body, dump door, coded DOT MC 307, 312
VT-453	5,500 gal mild steel, coded DOT 307, 312
VT-455	5,000 gal 1999 Cusco, carbon steel, hoist body, dump door, coded DOT 412
VT-458	6,000 gal 1993 Brenner Diesel, stainless steel, coded DOT 407, 412
#2	2,000 gal International Vacuum truck, coded DOT 306, 307, 312
#10	3,300 gal 1987 International Vacuum truck, coded DOT 306, 307, 312
#15	2,000 gal International Vacuum truck, coded DOT 306, 307, 312
#17	3,500 gal 1992 Ford/Cusco Turbo-Vacuum unit
#20	3,300 gal 1989 Ford Vacuum truck, coded DOT 306, 307, 312
#26	3,000 gal 2002 Sterling Vacuum, coded 312
#29	3,500 gal 1995 Ford/Cusco Turbo-Vacuum unit
#45	2,000 gal 1999 Sterling/Cusco Stainless Steel Vacuum Truck, coded DOT
#48	2,000 gal 1990 Ford Vacuum truck, coded DOT 306, 307, 312

Tanker Trailers

T-454	7,000 gal stainless steel, coded DOT 307, 312
T-459	6,800 gal stainless steel, coded DOT 307

Trucks/Trailers

1	Vactor 1200 Jet Rodder
2	Hazardous Material Response Trailers (40' van with inventory of sorbents, booms, recovery barrels, command and communications center)
1	12' Stake (#30)
1	12' Stake with lift gate (#31)
1	3500 HD Pickup with lift gate (#37)
1	20' Stake with lift gate (#56)
2	Tri-axle Roll off Trailers
20	Operations Vehicles
1	All-terrain vehicles
2	Flatbeds with tarp covers
2	Emergency Air Supply Vans
4	Tractors (3 equipped with wet systems PTO)
10	20-yard roll-off boxes
2	Roll-on/roll-off trailers
1	30 yard oil water separator
3	20 yard oil water separator
1	20 yard vacuum box
1	46' Drop-deck-Side board kit & tarp (T-11)



- 1 42' Drop-deck-Side board kit & tarp (T-14)
- 1 43' Drop-deck w/pump gear (T-15)
- 1 Ford pick-up with Tommy lift (#16)
- 1 Chevy Pickup with Tommy lift (#47)
- 2 Bobcat (sweeper, blade, bucket, backhoe attachments)

Skimmers

ACME Model VSV-39T
 Snyder Skimmer (2)
 Oleo Skimmer (2)
 Oil Mop oleophillic rope - 11 GPM
 Slick Bar "Slurp" vacuum
 KMA Skimmer Collar (3)
 Skimmer Plate - 6" (10) and 4" (3)
 Drum skimmer - 30-gpm (2)
 Drum Skimmer - 20-gpm (1)

BUDA I Work Barge

36' x 12'
 Capable of transport by air, rail or trailer
 2-200 HP outboards
 Debris catcher
 12' x 20' Debris or boom hauling space
 Marine radio

BUDA II Vacuum Barge

40' x 10', Diesel self-propelled
 Capable of transport by air, rail or trailer
 Skimming capability of 3,000 gallons per hour with 1" depth of product
 5,000 gallon storage capacity
 1000 CFM Blower
 Two skimmer adapters
 15kw diesel generator
 10' x 8' debris hauling space and debris catcher
 Marine radio

Outboard Utility Boats

27' Command Ship *Red Anchor II*, equipped with marine radio (1)
 24' Aluminum Rapid-Response Boat, 180HP
 20' Aluminum work boat, 140 hp
 19' Four Winns Transport Craft

17' Boom boat with Marine radios and outboard motors (1)



13' Boom boat with Marine radios and outboard motors (1)

High Capacity Pumping Systems

Six Complete Systems located in Detroit, Michigan. These high capacity submersible pump systems are effective for use in emergency transfers, dewatering, in addition to sewer and water system bypasses. They can be used with all liquid petroleum products, including low flash and highly viscous materials. Special pumps are also available for caustics and acids. Each system contains:

Six Cylinder Air or Water Cooled Diesel Power Pack

250' Cargo Hose

250' Hydraulic Hose

Submersible Hydraulically Powered Pumps (7 types)

Type 1 - KMA 333 stainless steel, chemical/viscous material

Type 2 - 3,000 GPM at 80' head (TK-6)

Type 3 - NIAI Bronze, Chemical/viscous material, 2250 GPM at 140' head, Butterworth access (CCN-150)

Type 4 - Auger type for viscous material (latex, molasses, etc.) 660 GPM at 165' head (Marflex)

Type 5 - Stainless Steel 600 GPM at 80' head (TK-4)

Type 6 - Stainless Steel 1,200 GPM at 100' head (TK-5)

Type 7 - 6" Submersible, 1,000 GPM at 65' head (Bryon Jackson)

Type 8 - 6" Submersible, double stage, 1050 GPM at 65' head

Fire fighting pump (1): portable (2 or 3) gun monitor, Foam, spray and straight stream

A total of nineteen (19) additional systems are located in the following cities (map attached):

Boston, MA (1)

Houston, TX (1)

Seattle, WA (1)

South Point, OH (1)

New York Harbor (1)

San Juan, Puerto Rico (1)

Baltimore, MD (1)

New Orleans, LA (1)

Hong Kong (1)

Savannah, GA (1)

Tampa, Florida (1)

Ketchikan, Alaska (1)

Long Beach, CA (1)

San Francisco, CA (1)

London, U.K. (1)

Nikiski (Anchorage), AK (1)

Honolulu, HI (1)

Singapore (1)

All pump systems are ready for immediate deployment to any point in the world.

MPC has stationed additional spill response equipment at most of the locations listed above. The spill response equipment that has been added to each location includes pneumatic marine fenders (5' x 10') and dual nozzle fire monitors.

MPC maintains one portable hydraulically driven "Hot-Tap" unit capable of making safe penetrations on steel plate and pipe. The "Hot-Tap" unit is deliverable with necessary valves and cutting tools to make 3", 4" or 6" taps while installing valves over access point.

Communications Equipment

Telephone (313) 849-2333 and (800) 521-8232

Facsimile (313) 849-1623



2-way business band base station (1)
Digital 2-way communications devices (21)
Mobile 2-way business band radios (21)
Portable 2-way radios (8)
Marine radios (5), and Mobile Marine radios (6)
IP petroleum portable base station, call sign WNGS 717 (1)
Iridium Satellite Phone (1)

Auxiliary Equipment

Vac-Pac (a portable dust-free scarifier used for PCB decontamination)
Fork lifts (2)
175 CFM air compressor (1)
32' Mobile office trailer
13,000 psi waterblaster (mounted in a box van truck)
Sewer Jet attachments for waterblaster
Mobile Lighting units, 5,000 watts, 16' and 26' towers
Tripod, 3,000 lbs
Miscellaneous portable generators (3)
Portable drum crusher (SAF-T-CRUSH) (2)
Field lab-sampling equipment
Steam Jennies (2)
1,800 psi power washer
Electric (110V) pressure washer, 2.5 gpm
Mobile power washer (250 gal.) (1)
Cutting torches
Air chippers and hammers
Discharge mill hoses, assorted sizes
Suction hoses, assorted sizes
Grip hoists, Chain falls
Non-sparking tools, Underwater tools
Cuno filtering system (5 micron)
Recovery drums & handling equipment
Stainless steel air driven barrel pump (1)
2" air diaphragm pump (2)
3" air diaphragm pump (2)
4" trash pump

Auxiliary Services

Organic chemist
Inorganic chemist
Consultant for spill cleanups
Chemist
Groundwater Monitoring Wells

Site Assessments
Site Remediation plans



Staff Geologists

Groundwater Decontamination Equipment

Sampling pumps (air operated) with associated equipment
Surveying transit and tripod
Liquid Interface probes for well depth measurement
Photolionization meters
Various bailers and sampling equipment
Stripping towers (site specific)
Carbon purification units (site specific)
Electric submersible pumps explosion proof 5hp to 1hp
Gorman Rupp centrifugal explosion proof pumps
Gorman Rupp centrifugal pumps for caustics and acids
ORS - Scavenger systems
ORS - Ground water pumping systems for shallow wells
NEPCCO - Petro & Hydro purge systems for deep wells
Entec- Probe scavenger & hydro pump for deep well system
550-gallon product recovery tanks (4)
Various size well screens kept in stock
1,000 skid tank
Hermit Data logger (pump tests)
Water table depression system
Hand vacuum sample filtering system.

Safety Equipment

2 Field Office Trailers w/computer, radio, & Fax Facilities
Water Trailer
2 Pressure wash decontamination stations - 250 gal. water
2 portable eyewash stations
Comset communication set for Level A suits
3 Lamb air movers
2 positive/negative air tank blowers
1 non-sparking (Kevlar) Miller Personnel Extraction System
Personnel Extraction System (steel cable) (3)
Non-sparking hand tools, shovels, rakes, & clean up equipment
2 Acid King Level A Suits
2 MSA Chempruf Level A Suits
Dräger Pump Sample Kit (w/various hazmat tubes)
Supply of Lifeguard disposable Level A Hazmat responder suits
Supply of Saranex Level B suits
Supply of Frontline Level B suits

Supply of polyethylene tyvek suits
Supply of tyvek suits
Supply of viton, neoprene, silver shield, butyl, and PVC gloves



Hard hats, face shields, eye protection, first aid kits, first aid/CPR trained personnel

1 pH meter

6 O₂/LEL meters

3 Hnu meters with strip charts

2 Micro-tip Photovac photoionization meters

1 OVM meter

2 Jerome mercury vapor analyzers

HCN-Monitox - H₂S Monitox - HNU meter with strip chart (10.2 eV probe)

40 MSA Comfo II cartridge respirators

30 MSA Ultra Twin Full Face cartridge respirators

72 boxes (minimum in stock) MSA GMC-H Combination organic vapor/acid gas cartridges

72 boxes (minimum in stock) MSA Mersorb Indicator mercury vapor cartridges

8 MSA Type-N canister gas masks

16 (minimum in stock) MSA Window canisters

100 3M disposable air purifying respirators

12 self contained breathing apparatus (SCBA) units:

2200 psi Ultralite (1)

2200 psi Ultralite with dual purpose regulator (1)

Custom 4500 psi (4)

Custom 4500 psi with dual purpose regulator (4)

2200 psi 5 minute escape bottles (2)

25 pressure demand air masks

18 airline belt regulators

9 high pressure bottle regulators

1000' neoprene airline

Breathing air compressor

Air Supply Trailer #1 (cascade system):

Ten 2200 psi breathing air cylinders (removable)

Seven man working capacity

4 to 6 hours of air time

Air Supply Trailer #2:

Six 4500 psi breathing air cylinders

Two 2200 psi breathing air cylinders

6 back up 2200 psi breathing air cylinders

4 back up 2200 psi SCBA bottles

3 back up 4500 psi SCBA bottles

Boom

5,000' of ACME "O.K. Corral" containment boom

Flotation Diameter: 8"

Skirt Length: 12"

Size/Length: 100' sections

Emergency Response Trailers

2,000' of ACME "O.K. Corral" containment boom



Flotation Diameter: 6"
 Skirt Length: 6" & 12"
 Size/Length: 50' and 100' sections

Including booms, anchoring equipment, misc. boom equipment, sorbent material, jon boat and generator
 1,000' of ACME "O.K. Corral" containment boom

Flotation Diameter: 6"
 Skirt Length: 12"
 Size/Length: 100' sections

Including booms, anchoring equipment, misc. boom equipment, jon boat, and skimmer.

Marine Pollution Control (MPC) is a distributor of ACME and Slickbar boom. Truckload quantities are readily available.

Sorbent Supplier of: (3M or SPC)

<u>Type</u>	<u>Quantity in stock</u>
8" Boom	200 bales (8,000')
5" Boom	50 bales
8" Fiberperl boom	75 boom's (750')
Rolls	100 rolls
Pads	400 bales
Pillows	20 bales
Sweeps	20 bales

Marine Pollution Control is a distributor of 3M, SPC and Fiberperl sorbents. Truck load quantities are readily available. In addition, MPC has three (3) twenty (20) foot spill response containers stationed around the Great Lakes area. The contents of each container are as follows:

- a) 1,000 ft of 6" x 12" containment boom
- b) 1,000 ft of sorbent boom
- c) 2 bales of type 156 sorbent pads
- d) 2 bales of sorbent sweep
- e) 1 Bondico overpack
- f) 1 class "c" drum (55 gallon capacity)
- g) 6 stakes
- h) 1 sledge hammer
- i) 1,200 ft of rope
- j) 12 garbage bags
- k) 2 bags of sorb-all
- l) 6 anchors
- m) 8 floats



The above referenced spill response containers are positioned in the following cities:

Marysville (Port Huron), Michigan

Sault Ste. Marie, Michigan

Alpena, Michigan

Distributor of:

Fiberperl sorbents: booms, bags, pillows

Oil dispersant

ACME boom

SPC sorbents

Slikwik sorbents

ACME oil skimmers

Slickbar products

ENPAC Environmental containment products

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2.4.1 - SENSITIVE AREAS

This section lists sensitive areas on the St. Clair River that could possibly be impacted during a worst case discharge. Areas are listed in geographical order starting from the Marysville Power Plant and going downriver. See maps in this section.

<u>Area</u>	<u>Distance From Plant</u>
Water intake (Canada)	1.0 miles, east shoreline
Water intake (Canada)	1.2 miles, east shoreline
Marysville City Water Intake	1.2 miles, west shoreline
Public area	1.2 miles, west shoreline
Water intake (Canada)	2.3 miles, Stag Island, east shoreline
St. Clair Water Intake	7.1 miles, west shoreline
Public area	7.3 miles, St. Clair, west shoreline
Public area	7.4 miles, St. Clair, west shoreline
Cargill Salt Co. Intake	7.6 miles, west shoreline
Lambton P.P. Intake (Canada)	9.2 miles, east shoreline
Belle River P.P. Intake	11.3 miles, west shoreline
St. Clair P.P. Intake	11.5 miles, west shoreline
East China Water Intake	12.4 miles, west shoreline
Water intake (Canada)	12.6 miles, east shoreline
Public area	14.1 miles, Marine City, west shoreline
Marine City Water Intake	14.1 miles, west shoreline
Marina	15.5 miles, west shoreline
Marina	15.6 miles, west shoreline
Marina, Martindale Beach	16.1 miles, west shoreline
Marina, Roberts Landing	18.5 miles, west shoreline
Public Area	
(Walpole Island Canada)	19.9 miles, east shoreline
Marina, Algonac	20 miles, west shoreline

Located adjacent to the storage tanks is Bunce Creek, and located on the other side of the creek is an Edison substation (Bunce Creek). Gratiot Avenue is East of the tank storage and West of the Unloading Wharf, the pipelines cross under Gratiot Avenue.

There are not any schools, medical facilities, businesses, lakes and streams, endangered flora and fauna, recreational areas, or other areas of economic importance if they are not listed above that would be impacted by a discharge. This plan has been reviewed and is in compliance with the Region 5 Southeastern Michigan Area Contingency Plan for Southeast Michigan Coastal Zone.

2.4.2 - RESPONSE ACTIONS TO PROTECT SENSITIVE AREAS

The primary OSRO will be contacted whenever an oil spill incident occurs (see section 2.1 (3b)). The OSRO under blanket contract agreement with Detroit Edison will provide all necessary actions to protect the sensitive areas listed above. Recognizing that the extent of each spill incident may vary, the OSRO will act accordingly to protect these sensitive areas. See color coded maps in this section. **For aerial surveys of a spill call Gateway Air Services, 517 775-3515.**

The specific response actions with respect to sensitive areas will depend on the weather conditions at the time of the spill, the type of products spilled and the resources of the Oil Spill Response Organization (OSRO). Each situation must be evaluated individually to determine the optimum response. The following paragraphs describe the basic techniques to protect sensitive areas.

The current in the St. Clair River makes simple containment of spilled oil with booms very difficult, if not impossible. When a containment boom is exposed to high currents, the boom will act as a dam. Oil may break away from accumulated slick and pass under the boom in currents greater than 1 knot. Obviously, this renders the boom ineffective in protecting sensitive areas. The main strategy is not to contain the oil, but direct or control the spill into a recovery area.

In general, the spilled oil will be deflected by angling containment booms with the direction of the current toward the collection area. The deflection boom is backed up by a second boom attached to the shore or a sheltered area. Oil is collected from the shore or sheltered recovery area by skimmers or vacuum units. If possible, deflection booms should be placed so that the oil is directed into a back eddy or shallow area where the current is slow. Depending on the weather and the flow of oil, several booms may need to be cascaded together to direct the oil into a recovery area.

If the oil continues into the St. Clair Flats area and into Lake St. Clair, the currents will be much less than the St. Clair River. In these areas, booms can be effectively used to contain or block oil from flowing into small streams and ditches. Where possible, narrow ditches may be blocked by earthen dams. Since many areas are marshes and wetlands, it may not be possible to reach the areas by cleanup and recovery equipment. In these areas, booms will continue to be used to direct the flow of oil into the main part of the channel or River and protect sensitive wetlands.

In Lake St. Clair and open areas of the St. Clair Flats, booms may be used to encircle oil and water-based recovery areas may be setup. The water-based recovery equipment may be transported on small barges or special skimming boats may be used.

2.4.3 CHARTS

The following pages are selected copies of U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Recreational Charts 14853 with specific economically important and environmentally sensitive areas identified using the key outline in the previous section.

Following the Recreational charts are copies of selected environmentally sensitive area charts that give additional information about sensitive areas and the wildlife to be protected.

2.4.4 EQUIPMENT & PERSONNEL REQUIRED TO PROTECT SENSITIVE AREAS

In a worst case discharge, the flow and path of an oil spill will be determined by the type of oil, the weather conditions, and the time of year. Listed on the table in the first page of this section are the distances that a worst case discharge is likely to travel. In general, the oil would be expected to flow downstream of the plant on the St. Clair River toward the City of Algonac at a rate of 3-4 knots. The St. Clair River then divides into three main channels, the North, South or Middle. If the oil is not recovered; it would continue to flow into the St. Clair Flats area and eventually into Lake St. Clair. It is expected that the oil flow would be greatly reduced on Lake St. Clair and take at least two days to cross the lake.

The table indicates that the oil could reach the Algonac area and environmentally sensitive resources in as little as ten and one half hours. For this reason, an immediate mobilization of the OSRO with the maximum amount of boom, boats, recovery equipment and personnel is required. Detroit Edison could also immediately call alternative OSRO organizations, the U.S. Coast Guard, the St. Clair County Emergency Management Division and Canadian Agencies to protect and recover oil.

The equipment available from the OSRO is listed in section 2.3.3.10.

The Area Contingency Plan for Southeast Michigan Coastal Zone is available and located by the OPA Plan. This plan has addition information for the area.

2.4.4.1 PERSONNEL AND EQUIPMENT

Persistent Oil - 48 Hours

The general plan for response to a worst case spill will be to direct or control the flow of oil on the St. Clair River. This will require all boom and recovery equipment available from the primary OSRO and other organizations. Where possible oil will be recovered from shore based potential recovery sites.

As the spill progresses into the St. Clair Flats, booms may also be used to protect or contain the oil as the current decreases.

In the St. Clair flats area, small waterborne recovery equipment maybe needed to access confined areas. If the oil reaches Lake St. Clair, boom will be used to contain the oil and waterborne recovery equipment could be used for cleanup.

2.4.4. - RESPONSE ACTIONS TO PROTECT SENSITIVE AREAS (cont.)

The exact type and quantity of equipment needed will be determined by the conditions of the spill. The worst case discharge from Marysville Terminal Facility is not expected to travel beyond Lake St. Clair in 48 hours.

Persistent Oil - Tidal Waters

N/A

Non-Persistent Oil - 24 Hours

The equipment and personnel needed would be the same as described in the above persistent oil section.

Non-Persistent Oil - Tidal Waters

N/A

Spill Trajectory or Model

Not Available

Additional COTP required Areas

Detroit Edison is not aware of any additional requirements by the COTP.

2.4.5 - WORST CASE DISCHARGE EQUIPMENT & PERSONNEL LIST See Section 2.3.3.10.

ENVIRONMENTAL SENSITIVITY INDEX

St. Clair River, Lake St. Clair, and Detroit River

INTRODUCTION

The enclosed map series presents shoreline habitats, wildlife and human-use resources, and primary water-access points of the St. Clair River, Lake St. Clair, and Detroit River. It is presented as a supplement to the Joint Canada-United States, Pollution Contingency Plan for Spills of Oil and Other Noxious Substances in the Detroit-St. Clair Rivers. In the event of an oil spill, this map series and The Pollution Contingency Plan should be consulted.

SHORELINE CLASSIFICATION

The Canadian shoreline of maps 4-17 was classified during a ground survey and helicopter overflight undertaken in June 1985. The Canadian Coast Guard graciously provided the helicopter. The shoreline classification was greatly influenced by the flow of the river which was abnormally high during the survey. The net result of classifying the shoreline during this high-water stand was that some wetland areas were merged and, therefore, may not be indicated on the enclosed sensitivity maps. The United States shoreline and all of maps 1-3 were mapped by Dr. Charles Herdendorf and Laura Fay of Ohio State University in 1983 using a low-wing aircraft. Their work appears in a complementary set of sensitivity maps produced for the U.S. side of the border (available from NOAA, Seattle, Washington).

The types of shorelines found within the study area are listed below in order of increasing sensitivity to spilled oil. Environments 9 and 10 are most sensitive and deserve priority protection during a spill incident.

- 1. Exposed bedrock bluffs
- 2. Exposed sedimentary bluffs
- 3. Shelving bedrock shores
- 4. Sand beaches
- 5. Mixed sand and gravel shores
- 6. Gravel shores
- 7. Riprap structures
- 8. Sheltered rocky shores
- 9. Low vegetated banks (with grasses or trees)
- 10A. Fringing wetlands
- 10B. Broad wetlands
- Unranked (but generally low sensitivity) - retaining walls and harbor structures (primarily sheetwall)

SOCIOECONOMIC RESOURCES

Key points of socioeconomic importance that may be affected during a spill incident include community water intakes, marinas, and parks and recreational areas. Power plants are also indicated on the maps.

- ① Water Intakes (number corresponds to enclosed list)
- ⚓ Marinas
- 🏖 Parks and Public Recreational Areas
- ⚡ POWER Power Plants













Water Intakes

Water intakes (and their reference number) are derived from the 1983 Detroit-St. Clair River Supplement to the Joint Canada-United States Contingency Plan. The location of the intakes on the accompanying maps is approximate and serves only to indicate the general vicinity of the intake. The U.S. Coast Guard and the Ontario Ministry of the Environment are responsible for notifying water-intake facilities during a spill incident and both agencies maintain current lists of all private, municipal, and industrial water intakes.

Intake Number	Location	Phone Number	Map No.
1	Town of Petrolia, Canada	519-869-4011	1
2	Lambdon Area Water Supply	519-344-7429	1
3	Dunn Paper Company	313-984-5521	1
4	City of Port Huron	313-987-6000	1
5	Imperial Oil Ltd	519-337-8221	1
6	Polysar Ltd., Canada	519-337-8251	1
7	Dow Chemical Canada	519-337-2301	1
8	Suncor, Canada	519-337-2301	1
9	Marysville Edison	313-364-6253	1
10	Shell Canada, Ltd	519-862-1492	1
11	City of Marysville	313-364-8460	1
12	Dupont of Canada, Ltd	519-862-1445	1
13	Petrosar Ltd	519-862-2911	1
14	Union Carbide, Canada	519-862-2961	1
15	City of St. Clair	313-329-2811	2
16	Diamond Crystal	313-329-2211	2
17	Ontario Hydro	519-867-2663	2
18	Detroit Edison Co.	313-329-2207	2
19	St. Clair County #2	519-373-7660	2
20	Canadian Industries	519-867-2739	3
21	Marine City, USA	313-765-8087	3
22	Chinook Chemical	519-892-3411	3
23	City of Algonac #2	313-794-3281	5
24	City of Algonac #1	313-794-3281	5
25	Walpole Island	519-627-1481	3
26-31	on U.S. side		
32	Town of Belle River	519-728-1680	11
33	Tilbury North Township	519-694-3313	10
34	Town of Tilbury	519-682-0481	9
35	Wallaceburg Waterworks	519-627-4191	6
36	Town of Tecumseh	519-735-2564	13
37	Detroit Edison	517-373-7660	13
38	City of Detroit	313-961-6132	13
39	City of Windsor	519-254-1692	13
40	Ford Motor Company	519-256-5555	13
41	Hiram Walker & Sons Ltd.	519-254-5171	14
42	Detroit Public Light Co.	313-842-3350	14
43	Revere Copper & Brass	313-841-7350	14
44	Delray Edison	313-841-1891	14
45	Ford Screen House	517-373-7660	14
46	Detroit Coke Plant	313-842-6222	14
47	Canadian Salt Co	519-256-3105	14
48	Ontario Hydro	519-969-7130	14
49	Great Lakes Steel	313-297-3850	14
50	Rouge River Edison	517-373-7660	14
51	Great Lakes Steel	313-297-3850	14
52	Great Lakes Steel	313-297-3850	14
53	City of Detroit	313-224-4775	15
54	BASF, Wyandotte	313-282-3300	15
55	Municipal Electric & Water Company	313-282-7100	16
56	Same as above	313-282-7100	15
57	BASF, Wyandotte	313-282-3300	15
58	Pennwalt Corp. #2	313-285-9200	15
59	Pennwalt Corp. #1	313-285-9200	15
60	Firestone Steel	313-282-9000	15
61	McLouth Steel	313-285-1200	15
62	McLouth Steel	313-282-1200	15
63	Allied Chemical	519-736-2111	15
64	Detroit Edison	313-676-9307	16
65	Chrysler, Trenton	313-373-3660	16
66	Seagrams of Canada	519-736-2161	15
67	Amherstburg, Canada	519-736-5342	17
68	McLouth Steel Corp	517-373-7660	16

BIOLOGICAL COMPONENTS

The primary biological resources of the study area are symbolically indicated to provide the response effort with an overall description of the critical wildlife present. Information has been synthesized from a variety of published and unpublished reports to provide a comprehensive evaluation of all wildlife groups—birds, fish, and mammals. The symbols used to represent these species and their seasonality are presented below.

-  **COASTAL MAMMALS**
 -  Muskrats
-  **BIRDS**
 -  Hawks and allies
 -  Wading birds and allies
 -  Shorebirds and allies
 -  Gulls and coastal birds
 -  Migratory waterfowl
 -  Diving birds and allies
-  **FISH**
 -  Great Lakes anadromous species
 -  Other species of ecological and economic importance

DESCRIPTION OF SHORELINE TYPES

St. Clair River, Lake St. Clair, and Detroit River

EXPOSED BEDROCK BLUFFS

ESI = 1

- Not present in study area

EXPOSED SEDIMENTARY BLUFFS

ESI = 2

- not present in study area

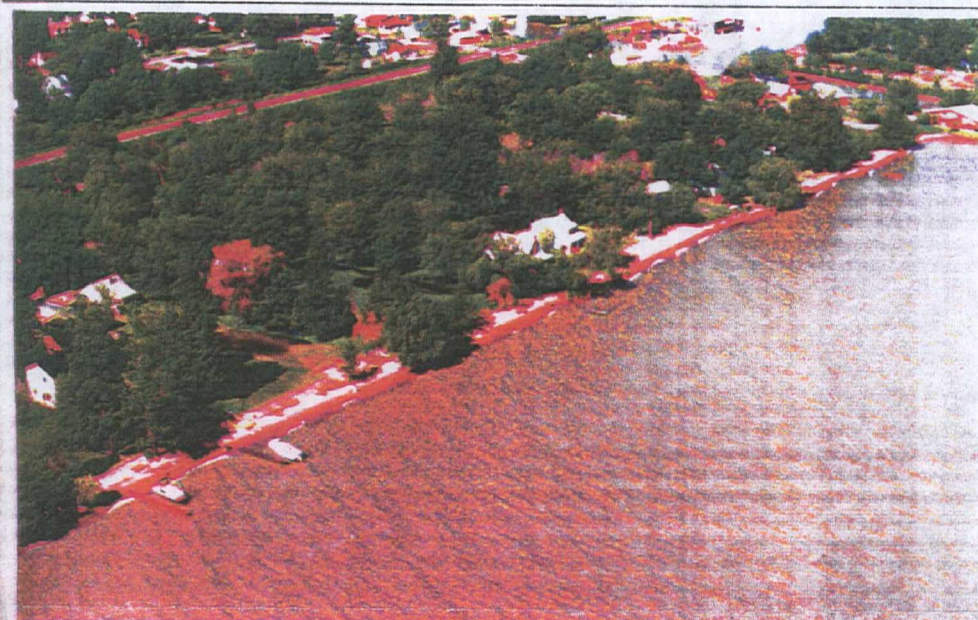
SHELVING BEDROCK SHORES

ESI = 3

- Not present in study area

SAND BEACHES

ESI = 4



- Present along Lake Erie and Lake Huron, along the remaining natural (no bulkheads or riprap) shoreline of the south shore of Lake St. Clair, and as isolated pockets in other sections
- May vary from fine- to coarse-grained sediments
- Flora and fauna are sparse, although aquatic insects and aquatic larvae are seasonally abundant

PREDICTED OIL IMPACT

- Commonly, oil will be deposited on and become mixed into the sand along the swash zone
- Oil may penetrate deeply into the beach sands under large quantities of incoming oil

RECOMMENDED RESPONSE ACTIVITY

- Cleanup may be difficult because of soft sands
- Sand removal should be kept to a minimum to avoid erosion problems
- Activity through the oiled area should be minimized to avoid grinding the oil deeper into the sand
- Use of heavy equipment to remove the oil or oily sand may remove excessive amounts of sand; manual cleanup may be more efficient, especially under small quantities of oil

MIXED SAND AND GRAVEL BEACHES

ESI =



- Present in very few localities; primarily in eroding, glacial till areas
- Aquatic insects and aquatic larvae are seasonally common
- Macrofauna and flora are generally sparse

PREDICTED OIL IMPACT

- Oil will be deposited primarily as a swash line
- Percolation into the beach may be substantial (5-15 cm), limited by poor sorting and the natural compaction of the beach
- Biota present may be killed by the oil, by smothering, or by lethal concentrations in the water column

RECOMMENDED RESPONSE ACTIVITY

- Removal of sediment should be limited
- Mechanical equipment should be used cautiously to avoid grinding oil deeper into the sediment
- In many cases, manual removal may be more effective, especially with small concentrated spills
- Use of high-pressure spraying to remove the oil and collection of the oily runoff by sorbent booms can be effective

GRAVEL BEACHES

ESI =

- Not present in the study area

RIPRAP STRUCTURES

ESI =



- Very common throughout the Detroit and St. Clair Rivers; used to stabilize shoreline
- Also used as groins, particularly along Lake St. Clair
- Biota along the upper structures are sparse, although gulls may be common
- Riprap is a particularly important substrate for fish-food organisms and for the spawning of several fish species
- Attached algae may be common along continually submerged sections

PREDICTED OIL IMPACT

- Oil easily percolates between and under the rocks used in the riprap structures
- Biota may be damaged or killed, especially under heavy accumulations

RECOMMENDED RESPONSE ACTIVITY

- Along structures exposed to wave action, cleanup may not be necessary
- High-pressure spraying or sand blasting is effective, especially on fresh oils
- Cleanup is usually necessary in areas adjacent to recreational areas; sorbent material should be used to capture the oily runoff

SHELTERED BLUFFS

ESI=8



- Found mostly along the U.S. side (classified by Herdendorf and Fay of Ohio State University)
- Generally classified as low-lying bluffs (2-5 m high) in sheltered areas
- Narrow sand and/or gravel beaches or wetlands are commonly found along the bottom edges of the bluff
- Access may be difficult
- Biota within the bluff itself are sparse

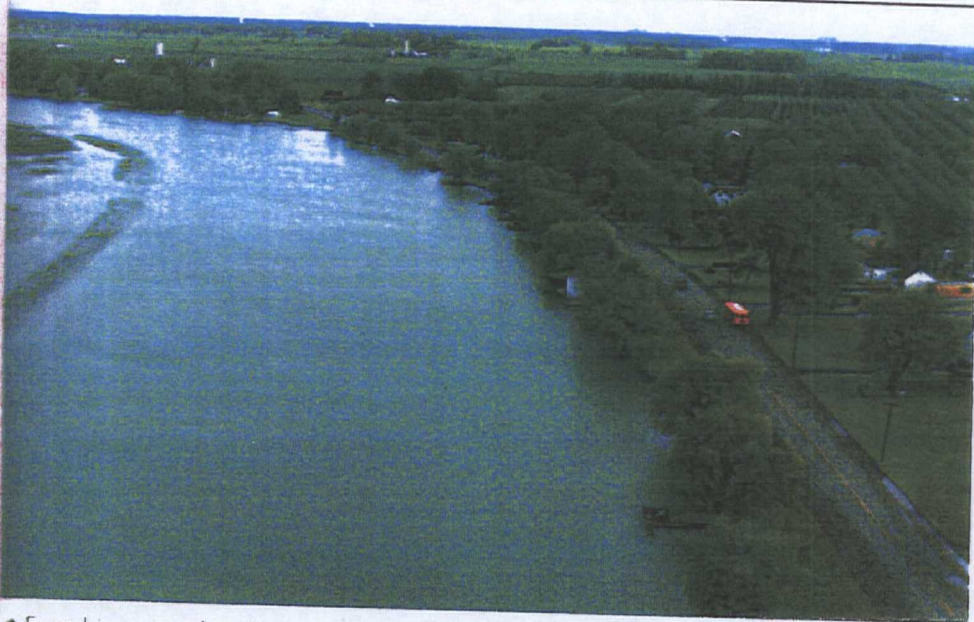
PREDICTED OIL IMPACT

- Incoming oil will form a oily band along the swash line
- If sediment or wetland is exposed along the base, consult the appropriate ESI category for impact prediction

RECOMMENDED RESPONSE ACTIVITY

- Cleanup is needed to avoid long-term persistence of the oil
- Manual removal is usually best because of the narrow platform usually associated with the bluff
- Sorbent materials are very useful under these circumstances

LOW VEGETATED BANKS (WITH GRASSES OR TREES) ESI=9



- Found in a few localities along the lower Detroit river
- Contains either low banks with grasses or trees (in some cases erosional)

PREDICTED OIL IMPACT

- During low-water stages, oil will coat only the edge of the bank
- During high-water stages, oil has the potential for overtopping the bank and covering the grasses or trees on the bank
- Oil may kill the grasses and other vegetation present
- Trees may become oiled, but will probably not be killed unless oil concentrations within the sediment are very high

RECOMMENDED RESPONSE ACTIVITY

- Where possible, these areas should be boomed off to prevent oil from entering
- High- and low-pressure spraying, with cutting only if necessary, will aid oil removal from exposed tree roots
- Sorbent booms should be used to collect oily runoff

FRINGING AND BROAD WETLANDS

ESI=



- Very common along the St. Clair River delta and along the lower parts of the River
- Composed of emergent or floating aquatic vegetation
- The outer parts of the wetland along the St. Clair River delta may be submerged during high-water stages
- Wetlands are the most important and most sensitive wildlife habitat, providing nesting area for waterfowl and aquatic birds and mammals, as well as a major nursery and spawning ground for many species of sport and forage fishes

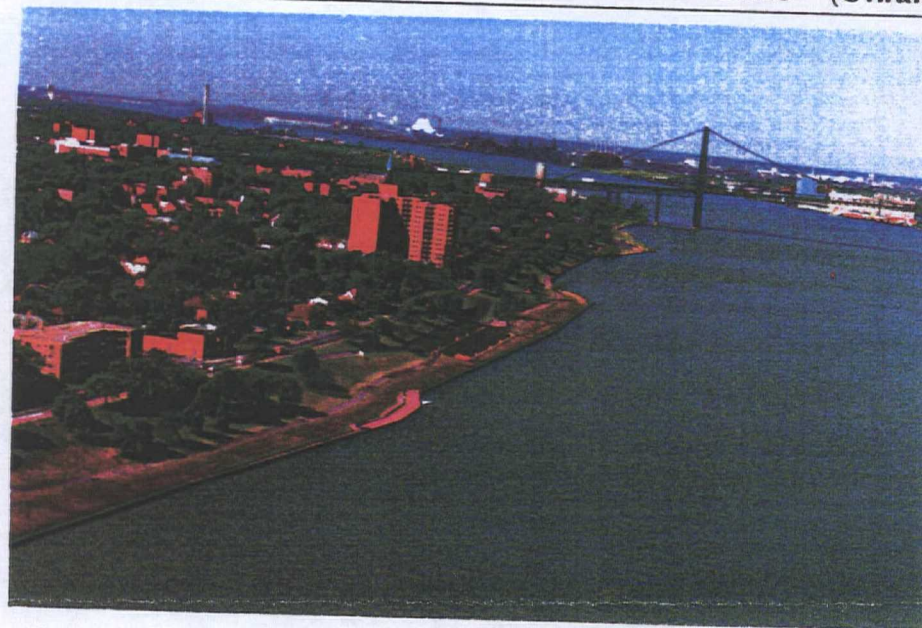
PREDICTED OIL IMPACT

- Oil in heavy accumulation may persist for several years
- Small oil quantities will be deposited primarily along the outer wetland
- Resident biota, including bird life, are likely to be oiled and possibly killed

RECOMMENDED RESPONSE ACTIVITY

- Under light oiling, the best practice is to let the wetland recover naturally
- During winter months, surface ice commonly offers some protection of the shore
- Heavy oil accumulations on the wetland surface should be removed manually
- Cleanup activities should be closely monitored to prevent excessive damage to the wetland

RETAINING WALLS AND HARBOR STRUCTURES (Unranked)



- Primarily composed of sheetwall used for shoreline stabilization
- Also includes wooden docks and piers, and concrete seawalls
- Very common throughout the Detroit and St. Clair Rivers
- Exposed structures along the rivers have low sensitivity, while pier structures provide nursery habitat
- Birds may utilize the upper portions of these structures

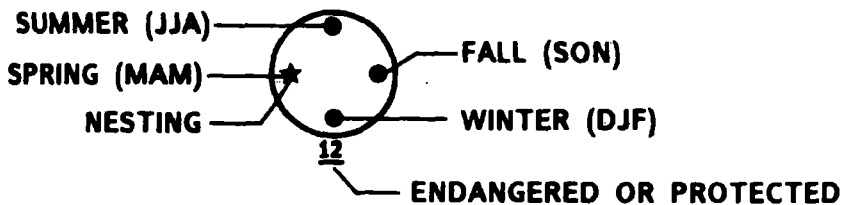
PREDICTED OIL IMPACT

- Oil will coat the concrete and sheetwall structures as an oily band
- Within harbors, pilings and wooden structures will be coated and difficult to clean because of inaccessibility
- Associated organisms may be damaged or possibly killed

RECOMMENDED RESPONSE ACTIVITY

- Along exposed structures, cleanup may not be necessary
- Sandblasting and high-pressure spraying are effective, especially on fresh oil
- Sorbent materials should be used to capture the oily runoff

SEASONALITY



KEY TO SPECIES

BIRDS

- | | |
|------------------------------|---------------------------------|
| 1. Piping plover | <i>Charadrius melodus</i> |
| 2. Common snipe | <i>Capella gallinago</i> |
| 4. Great blue heron | <i>Ardea herodias</i> |
| 6. Virginia rail | <i>Rallus limicola</i> |
| 7. Sora | <i>Porzana carolina</i> |
| 9. Black-crowned night heron | <i>Nycticorax nycticorax</i> |
| 10. American bittern | <i>Botaurus lentiginosus</i> |
| 11. Belted kingfisher | <i>Megaceryle alcyon</i> |
| 12. Black tern | <i>Chilidonias niger</i> |
| 13. Double-crested cormorant | <i>Phalacrocorax auritus</i> |
| 17. Canada goose | <i>Branta canadensis</i> |
| 18. Mallard | <i>Anas platyrhynchos</i> |
| 19. Black duck | <i>Anas rubripes</i> |
| 20. Green-winged teal | <i>Anas crecca</i> |
| 21. Blue-winged teal | <i>Anas discors</i> |
| 22. Wood duck | <i>Aix sponsa</i> |
| 23. Ring-necked duck | <i>Aythya collaris</i> |
| 24. Redhead | <i>Aythya americana</i> |
| 25. Greater scaup | <i>Aythya marila</i> |
| 26. Common goldeneye | <i>Bucephala clangula</i> |
| 29. Bald eagle | <i>Haliaeetus leucocephalus</i> |
| 30. Marsh hawk | <i>Circus cyaneus</i> |
| 33. Red-shouldered hawk | <i>Buteo lineatus</i> |
| 40. American coot | <i>Fulica americana</i> |
| 43. Tundra swan | <i>Olor columbianus</i> |
| 45. Lesser scaup | <i>Aythya affinis</i> |
| 50. Great egret | <i>Casmerodius albus</i> |
| 55. Killdeer | <i>Charadrius vociferus</i> |
| 56. Spotted sandpiper | <i>Actitis macularia</i> |
| 66. Herring gull | <i>Larus argentatus</i> |
| 67. Ring-billed gull | <i>Larus delawarensis</i> |
| 68. Common tern | <i>Sterna hirundo</i> |
| 71. Least bittern | <i>Ixobrychus exilis</i> |
| 72. Bonaparte's gull | <i>Larus philadelphia</i> |
| 75. Forster's tern | <i>Sterna forsteri</i> |
| 76. King rail | <i>Rallus elegans</i> |
| 83. Pintail | <i>Anas acuta</i> |
| 85. Canvasback | <i>Aythya valisineria</i> |
| 87. Common gallinule | <i>Gallinula chloropus</i> |
| 88. Glaucous gull | <i>Larus hyperboreus</i> |
| 94. American kestrel | <i>Falco sparverius</i> |
| 95. Hooded merganser | <i>Lophodytes cucullatus</i> |

- Ontario endangered species; threatened in Michigan
- Ontario and U.S. endangered Species
- Threatened species in Michigan
- Rare species in Michigan

MAMMALS

- | | |
|------------|---------------------------|
| 3. Muskrat | <i>Ondatra zibethicus</i> |
|------------|---------------------------|

FISH

- | | |
|---------------------|-------------------------------------|
| 1. Alewife | <i>Alosa pseudoharengus</i> |
| 2. Rainbow smelt | <i>Osmerus mordax</i> |
| 3. Spottail shiner | <i>Notropis hudsonius</i> |
| 6. Brown trout | <i>Salmo trutta</i> |
| 7. Rainbow trout | <i>Salmo gairdneri</i> |
| 8. Lake whitefish | <i>Coregonus clupeaformis</i> |
| 9. Chinook salmon | <i>Oncorhynchus tshawytscha</i> |
| 10. Coho salmon | <i>Oncorhynchus kisutch</i> |
| 12. Lake sturgeon | <i>Acipenser fulvescens</i> |
| 13. Northern pike | <i>Esox lucius</i> |
| 14. Bluegill | <i>Lepomis macrochirus</i> |
| 15. White crappie | <i>Pomoxis annularis</i> |
| 16. Black crappie | <i>Pomoxis nigromaculatus</i> |
| 17. Yellow perch | <i>Perca flavescens</i> |
| 18. Largemouth bass | <i>Micropterus salmoides</i> |
| 19. Smallmouth bass | <i>Micropterus dolomieu</i> |
| 20. Rock bass | <i>Ambloplites rupestris</i> |
| 21. Pumpkinseed | <i>Lepomis gibbosus</i> |
| 22. Walleye | <i>Stizostedion vitreum vitreum</i> |

- | | |
|--------------------------|--------------------------------|
| 23. White bass | <i>Morone chrysops</i> |
| 25. Muskellunge | <i>Esox masquinongy</i> |
| 26. Channel catfish | <i>Ictalurus punctatus</i> |
| 27. Carp | <i>Cyprinus carpio</i> |
| 28. Gizzard shad | <i>Dorosoma cepedianum</i> |
| 30. Brook trout | <i>Salvelinus fontinalis</i> |
| 33. Fathead minnow | <i>Pimephales promelas</i> |
| 37. White sucker | <i>Catostomus commersoni</i> |
| 39. Brown bullhead | <i>Ictalurus nebulosus</i> |
| 42. Sauger | <i>Stizostedion canadense</i> |
| 45. Freshwater drum | <i>Aplodinotus grunniens</i> |
| 46. White perch | <i>Morone americana</i> |
| 47. Sea lamprey | <i>Petromyzon marinus</i> |
| 48. Longnose gar | <i>Lepisosteus osseus</i> |
| 49. Spotted gar | <i>Lepisosteus oculatus</i> |
| 50. Bowfin | <i>Amia calva</i> |
| 51. Goldfish | <i>Carassius auratus</i> |
| 52. Silver chub | <i>Hybopsis storeiana</i> |
| 53. Golden shiner | <i>Notemigonus crysoleucas</i> |
| 54. Emerald shiner | <i>Notropis atherinoides</i> |
| 55. Common shiner | <i>Notropis cornutus</i> |
| 56. Spottin shiner | <i>Notropis spilopterus</i> |
| 57. Bluntnose minnow | <i>Pimephales notatus</i> |
| 58. Northern hog sucker | <i>Hypentelium nigricans</i> |
| 59. Sucker spp. | |
| 60. Trout-perch | <i>Percopsis omiscomaycus</i> |
| 61. Log perch | <i>Percina caprodes</i> |
| 62. Sculpin spp. | |
| 63. Mooneye | <i>Hiodon tergisus</i> |
| 64. Burbot | <i>Lota lota</i> |
| 65. Redhorse spp. | |
| 66. Quillback carpsucker | <i>Carpionodes cyprinus</i> |
| 67. Pink salmon | <i>Oncorhynchus gorbuscha</i> |

*Threatened species in Michigan

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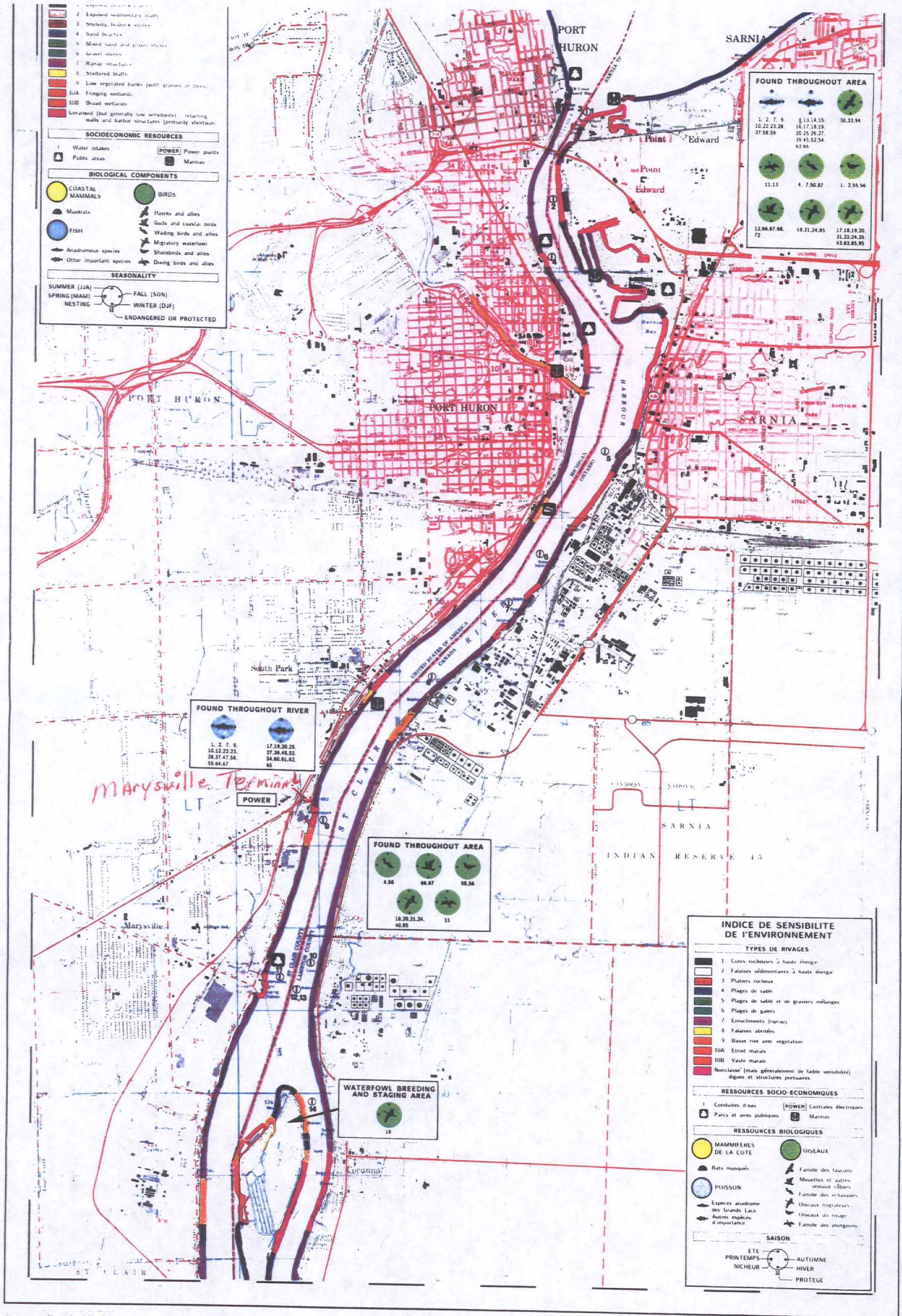
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ACKNOWLEDGMENTS

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We would also like to thank all persons at the local, provincial, and federal levels who reviewed the maps. The Ontario Ministry of Natural Resources, Ontario Ministry of Environment, and the Canadian Wildlife Service are especially thanked.

At Coastal Science & Engineering, Inc., D. Bryan Stone, III, Robin Elmore, and Janice Barrett prepared all graphics and layout; and Diana Sangster edited the text.



SARNIA CANADA - UNITED STATES OF AMERICA

MAP
1

PREPARED BY:
ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
22 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 1M2

BY:
COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29202

ADJOINS MAP #2

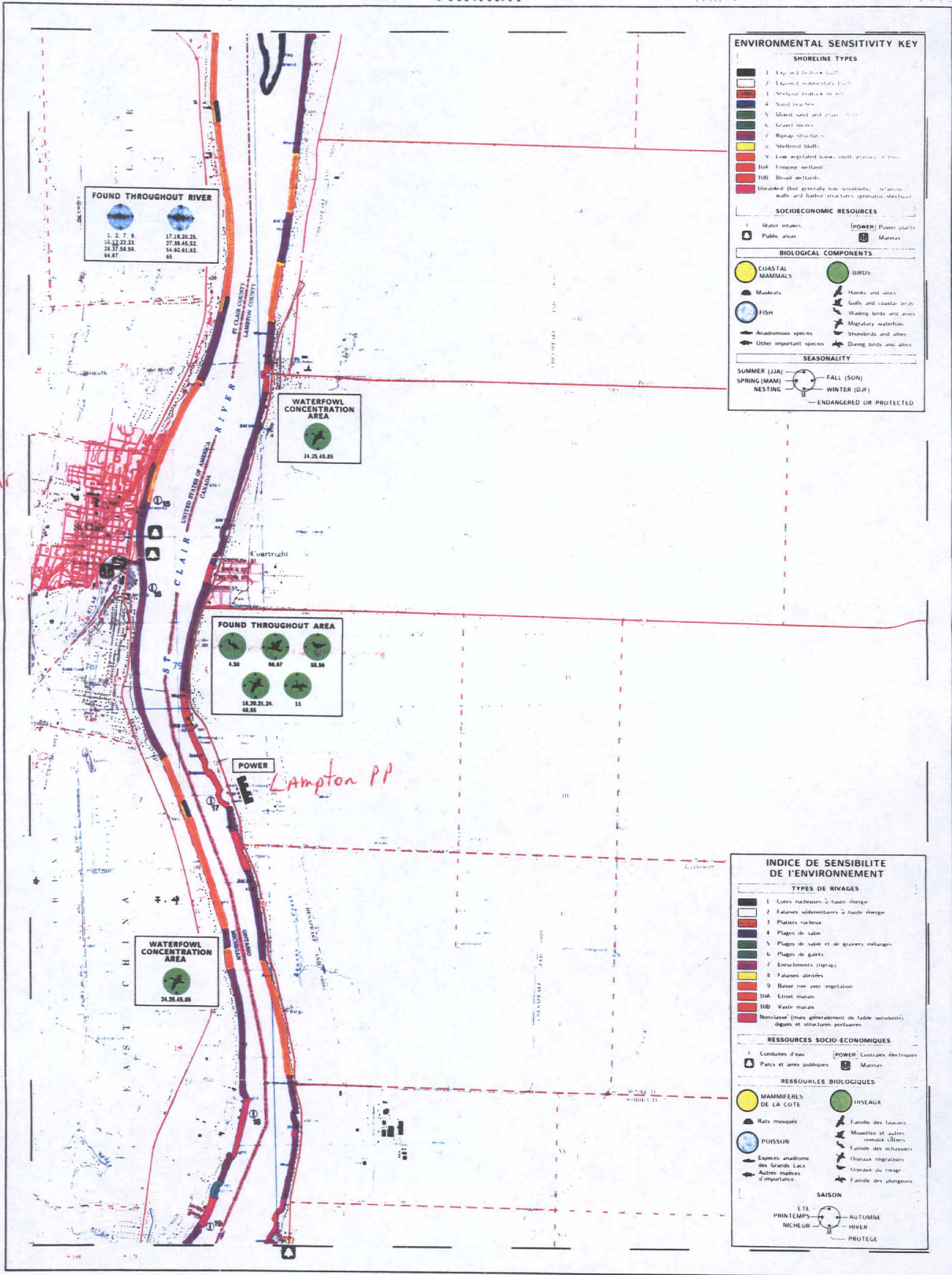
PREPARE PAR:
PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
22 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 1M2

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CARTE
1

ADJOINS MAP #1

CANADA



COURTRIGHT

CANADA-UNITED STATES OF AMERICA

MAP
2

ENVIRONMENTAL PROTECTION SERVICE
ENVIRONNEMENT CANADA
25 ST. CLAIR AVENUE EAST
COURTIER, ONTARIO M5T 1A6

COASTAL SCIENCE & ENGINEERING INC.
COLUMBIA SOUTH CAROLINA 29202



ADJOINS MAP #3

PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
25 ST. CLAIR AVENUE EAST
COURTIER, ONTARIO M5T 1A6

COASTAL SCIENCE & ENGINEERING INC.
COLUMBIA SOUTH CAROLINA 29202



CARTE
2

ADJOINS MAP #2

CANADA

EAST CHIN RIVER

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U.S. SIDE ONLY

Marine City

FOUND THROUGHOUT RIVER

1, 2, 7, 9, 10, 12, 22, 23, 28, 37, 47, 58, 59, 64, 67

17, 19, 20, 25, 27, 39, 45, 52, 54, 60, 61, 62, 65

BEACHES AND OPEN WATER ARE WATERFOWL CONCENTRATION AREAS

24, 25, 45, 85

FOUND THROUGHOUT AREA

30, 33, 94, 11, 13, 4, 6, 7, 9, 10, 50, 75, 87

2, 55, 12, 96, 67, 65, 72, 18, 21

17, 18, 19, 20, 21, 22, 24, 25, 43, 83, 85, 95

FOUND THROUGHOUT AREA

4, 50, 66, 67, 55, 56

18, 20, 21, 40, 11

ENVIRONMENTAL SENSITIVITY KEY

SHORELINE TYPES

- 1 Exposed bedrock bluffs
- 2 Exposed sedimentary bluffs
- 3 Shelfing bedrock shores
- 4 Sand beaches
- 5 Mixed sand and gravel shores
- 6 Gravel shores
- 7 Riprap structures
- 8 Sheltered bluffs
- 9 Low vegetated banks (with grasses or trees)
- 10A Fringing wetlands
- 10B Broad wetlands
- Unranked (but generally low sensitivity) retaining walls and harbor structures (primarily sheetpiling)

SOCIOECONOMIC RESOURCES

- Water intakes
- Public areas
- Power plants
- Marinas

BIOLOGICAL COMPONENTS

- COASTAL MAMMALS
- FISH
- MUSKRATS
- ANADROMOUS SPECIES
- OTHER IMPORTANT SPECIES
- BIRDS
- HAWKS AND ALLIES
- GULLS AND COASTAL BIRDS
- WADING BIRDS AND ALLIES
- MIGRATORY WATERFOWL
- SHOREBIRDS AND ALLIES
- DIVING BIRDS AND ALLIES

SEASONALITY

- SUMMER (JJA)
- SPRING (MAM)
- NESTING
- FALL (SON)
- WINTER (DJF)
- ENDANGERED OR PROTECTED

INDICE DE SENSIBILITE DE L'ENVIRONNEMENT

TYPES DE RIVAGES

- 1 Cotes rocheuses à haute énergie
- 2 Falaises sédimentaires à haute énergie
- 3 Platières rocheuses
- 4 Plages de sable
- 5 Plages de sable et de graviers mélangés
- 6 Plages de galets
- 7 Enrochements (rip-rap)
- 8 Falaises abritées
- 9 Basse rive avec végétation
- 10A Etroit marais
- 10B Vaste marais
- Nonclassé (mais généralement de faible sensibilité) digues et structures portuaires

RESSOURCES SOCIO-ECONOMIQUES

- Conduites d'eau
- Parcs et aires publiques
- Centrales électriques
- Marinas

RESSOURCES BIOLOGIQUES

- MAMMIFERES DE LA COTE
- POISSON
- RATS MUSQUES
- ESPECES ANADROME DES GRANDS LACS
- Autres espèces d'importance
- OISEAUX
- Famille des faucons
- Mouettes et autres oiseaux côtiers
- Famille des échouiers
- Oiseaux migrateurs
- Oiseaux du rivage
- Famille des plongeurs

SAISON

- ETE
- PRINTEMPS
- NICHEUR
- AUTOMNE
- HIVER
- PROTEGE

SOMBRA

CANADA UNITED STATES OF AMERICA

CANADIAN SIDE ONLY

ADJOINS MAP #4

MAP 3

ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
100 ST. CLAIR AVENUE EAST
MARINE CITY, MICHIGAN 48131
COASTAL SCIENCE & ENGINEERING, INC.
1000 W. 10TH AVE. SUITE 100
EDMONTON, ALBERTA T6P 0K1
CANADA
ES&E

PREPARE POUR
PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
100 ST. CLAIR AVENUE EAST
MARINE CITY, MICHIGAN 48131
COASTAL SCIENCE & ENGINEERING, INC.
1000 W. 10TH AVE. SUITE 100
EDMONTON, ALBERTA T6P 0K1
CANADA
ES&E

CARTE 3

ADJOINS MAP #3

CANADA

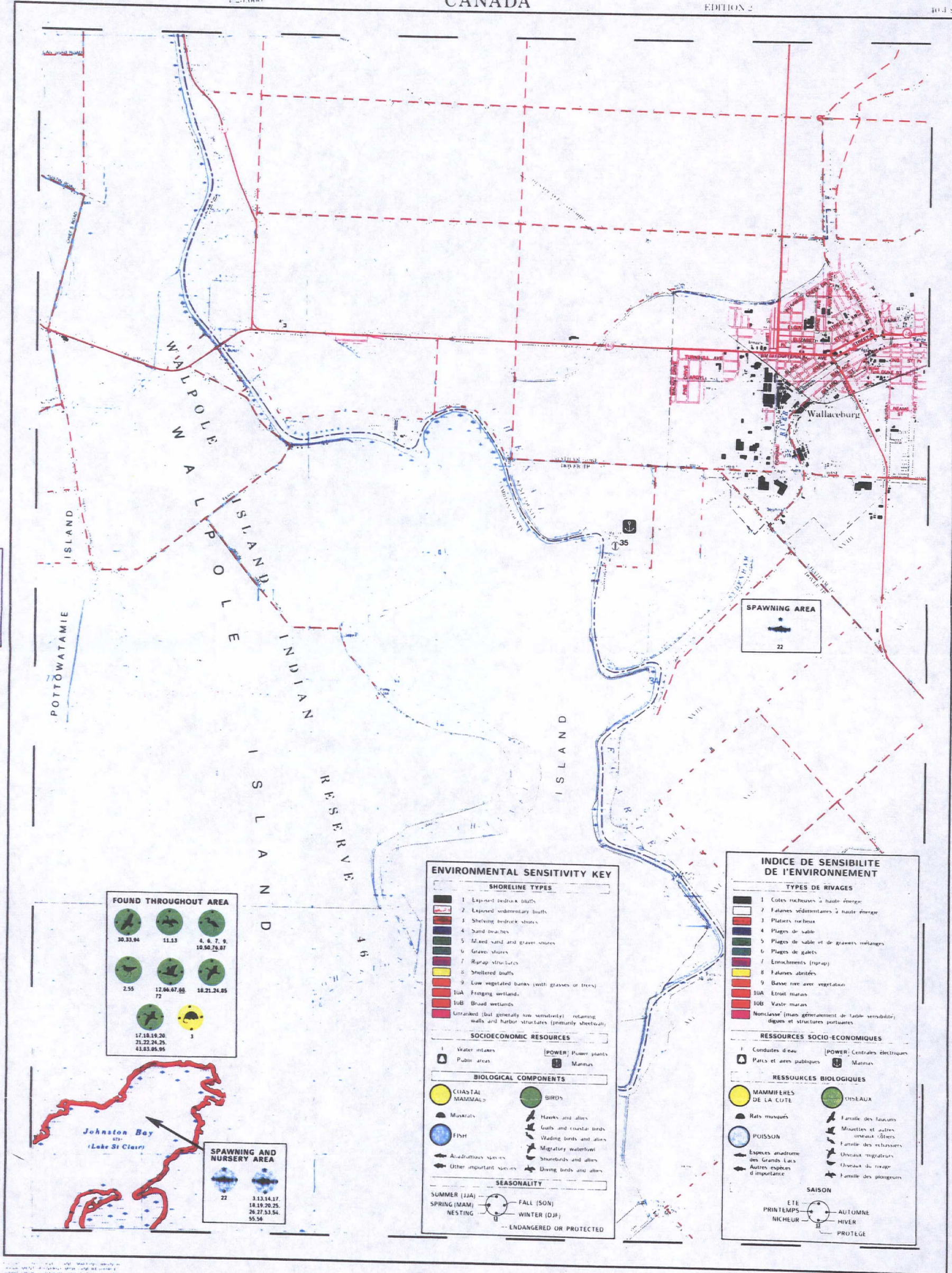
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ADJOINS MAP #5



MAP
4

PREPARED FOR:
ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
25 ST. CLAIR AVENUE, EAST
TORONTO, ONTARIO M4T 1V2

BY:
COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29202

ESE

ADJOINS MAP #7

PREPARE POUR:
PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
25 ST. CLAIR AVENUE, EAST
TORONTO, ONTARIO M4T 1V2

PAR:
COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29202

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CARTE
4

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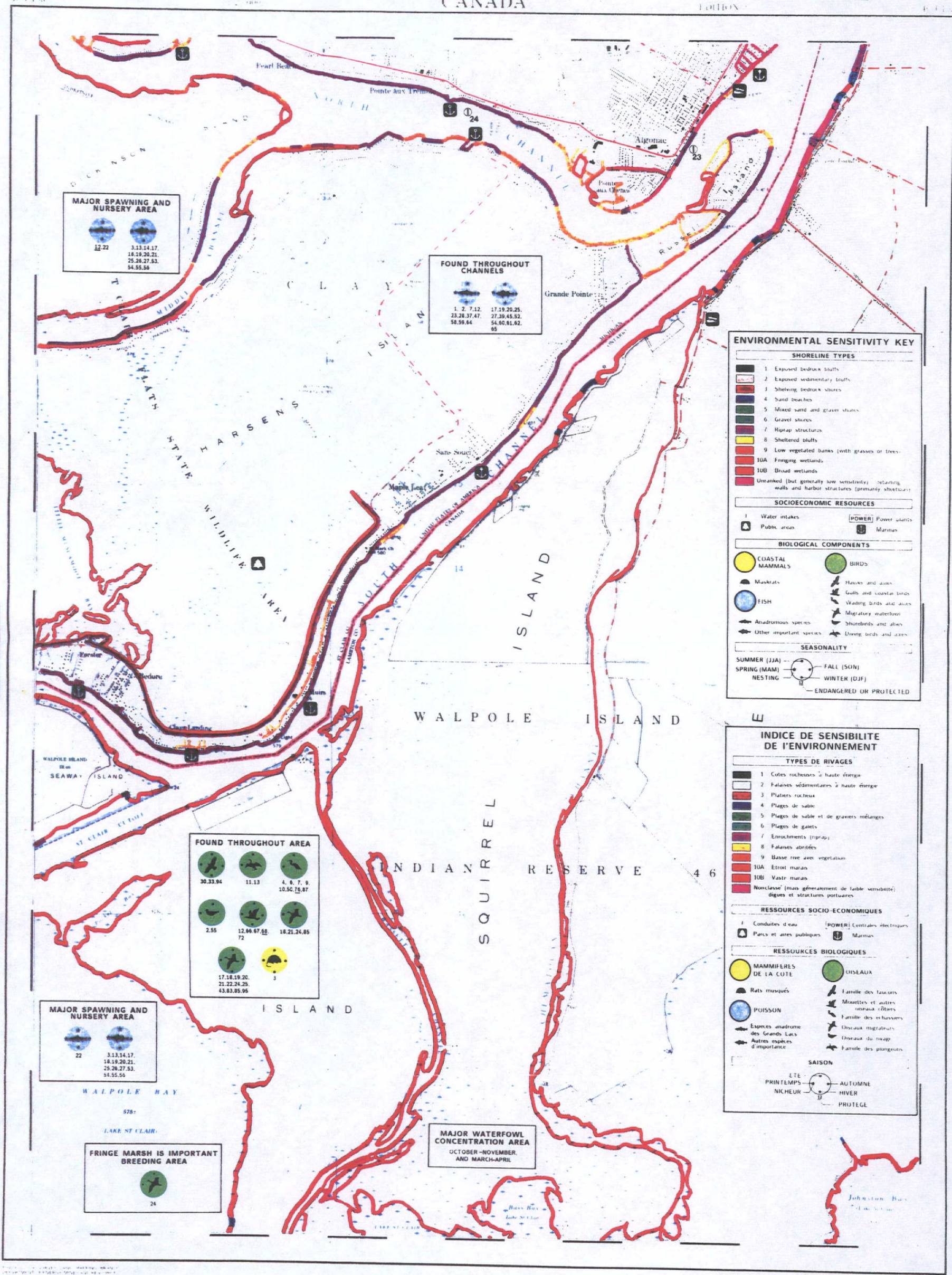
ADJOINS MAP #3

CANADA

EDITION

ADJOINS MAP #6

ADJOINS MAP #4



WALPOLE ISLAND
CANADA-UNITED STATES OF AMERICA

MAP
5

PREPARED FOR:
ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
36 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 1M6

BY:
COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29602

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ADJOINS MAP #8

PREPARE POUR:
PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
36 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 1M6

PAR:
COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29602

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CARTE
5

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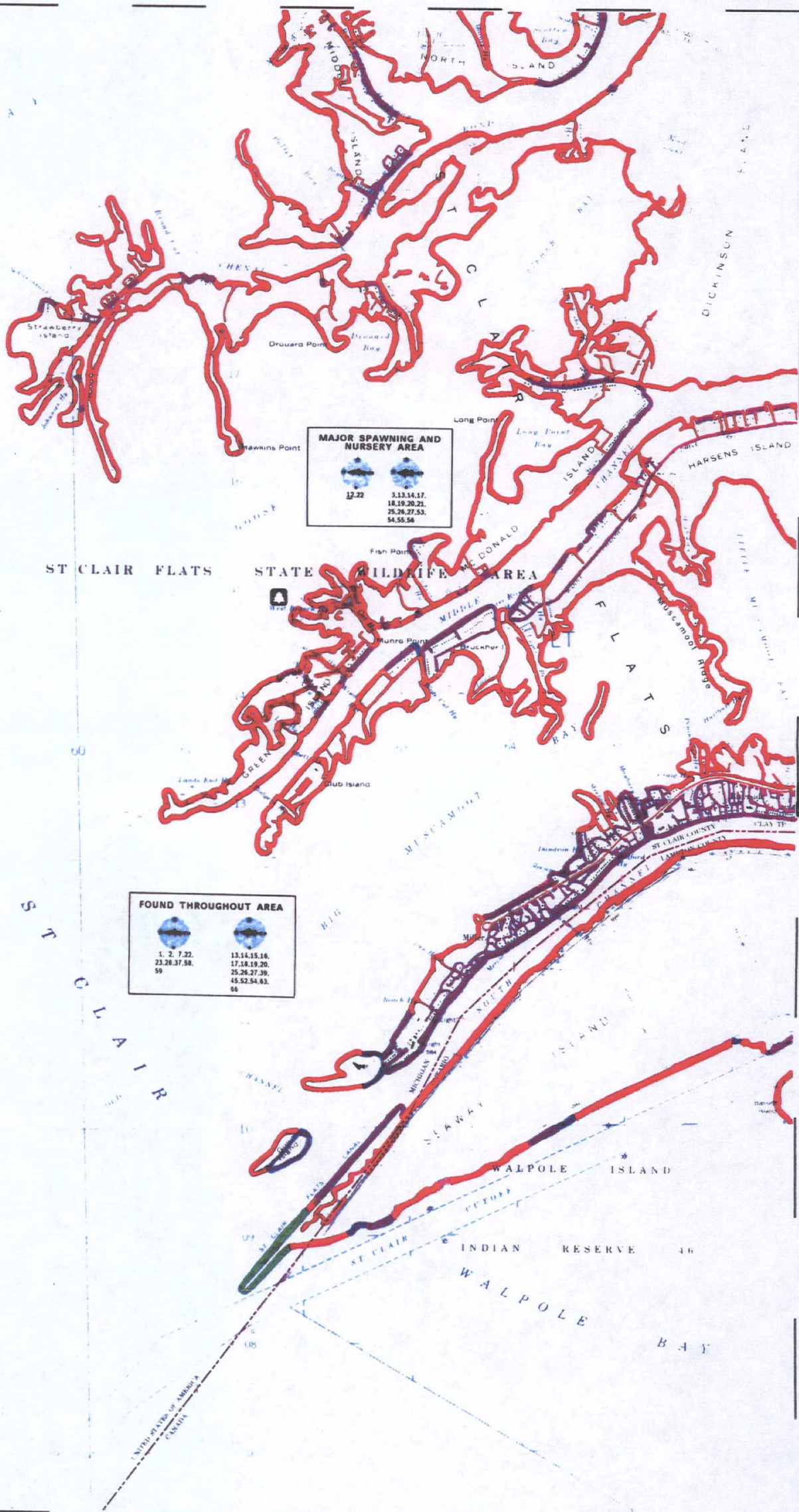
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EDITION 2

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ENVIRONMENTAL SENSITIVITY KEY

SHORELINE TYPES	
1	Exposed bedrock bluffs
2	Exposed sedimentary bluffs
3	Shelving bedrock shores
4	Sand beaches
5	Mixed sand and gravel shores
6	Gravel shores
7	Riprap structures
8	Sheltered bluffs
9	Low vegetated banks (with grasses or trees)
10A	Fringing wetlands
10B	Broad wetlands
Unranked	Unranked (but generally low sensitivity) retaining walls and harbor structures (primarily sheetpiles)
SOCIOECONOMIC RESOURCES	
Water intakes	POWER Power plants
Public areas	Marinas
BIOLOGICAL COMPONENTS	
COASTAL MAMMALS	BIRDS
Muskrats	Mallards and allies
FISH	Gulls and coastal birds
Anadromous species	Wading birds and allies
Other important species	Migratory waterfowl
	Shorebirds and allies
	Diving birds and allies
SEASONALITY	
SUMMER (JJA)	FALL (SON)
SPRING (MAM)	WINTER (DJF)
NESTING	
	ENDANGERED OR PROTECTED



INDICE DE SENSIBILITE DE L'ENVIRONNEMENT

TYPES DE RIVAGES	
1	Côtes rocheuses à haute énergie
2	Faîsses sédimentaires à haute énergie
3	Platiers rocheux
4	Plages de sable
5	Plages de sable et de graviers mélangés
6	Plages de galets
7	Enrochements (ripap)
8	Faîsses abritées
9	Basse rive avec végétation
10A	Étroit marais
10B	Vaste marais
Non classé	Non classé (mais généralement de faible sensibilité) digues et structures portuaires
RESSOURCES SOCIO-ECONOMIQUES	
Conduites d'eau	POWER Centrales électriques
Parcs et aires publiques	Marinas
RESSOURCES BIOLOGIQUES	
MAMMIFÈRES DE LA CÔTE	OISEAUX
Rats musqués	Famille des faucons
POISSON	Mouettes et autres oiseaux côtiers
Espèces anadrome des Grands Lacs	Famille des échassiers
Autres espèces d'importance	Oiseaux migrateurs
	Oiseaux du rivage
	Famille des plongeurs
SAISON	
ÉTÉ	AUTOMNE
PRINTEMPS	HIVER
NICHEUR	PROTEGE

ADJOINS MAP #5

SEAWAY ISLAND CANADA-UNITED STATES OF AMERICA

MAP
6

ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
25 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 1M2

COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29902



PRÉPARE POUR
PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
25 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 1M2

COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29902



CARTE
6

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date _____
Signed _____

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ADJOINS MAP #4

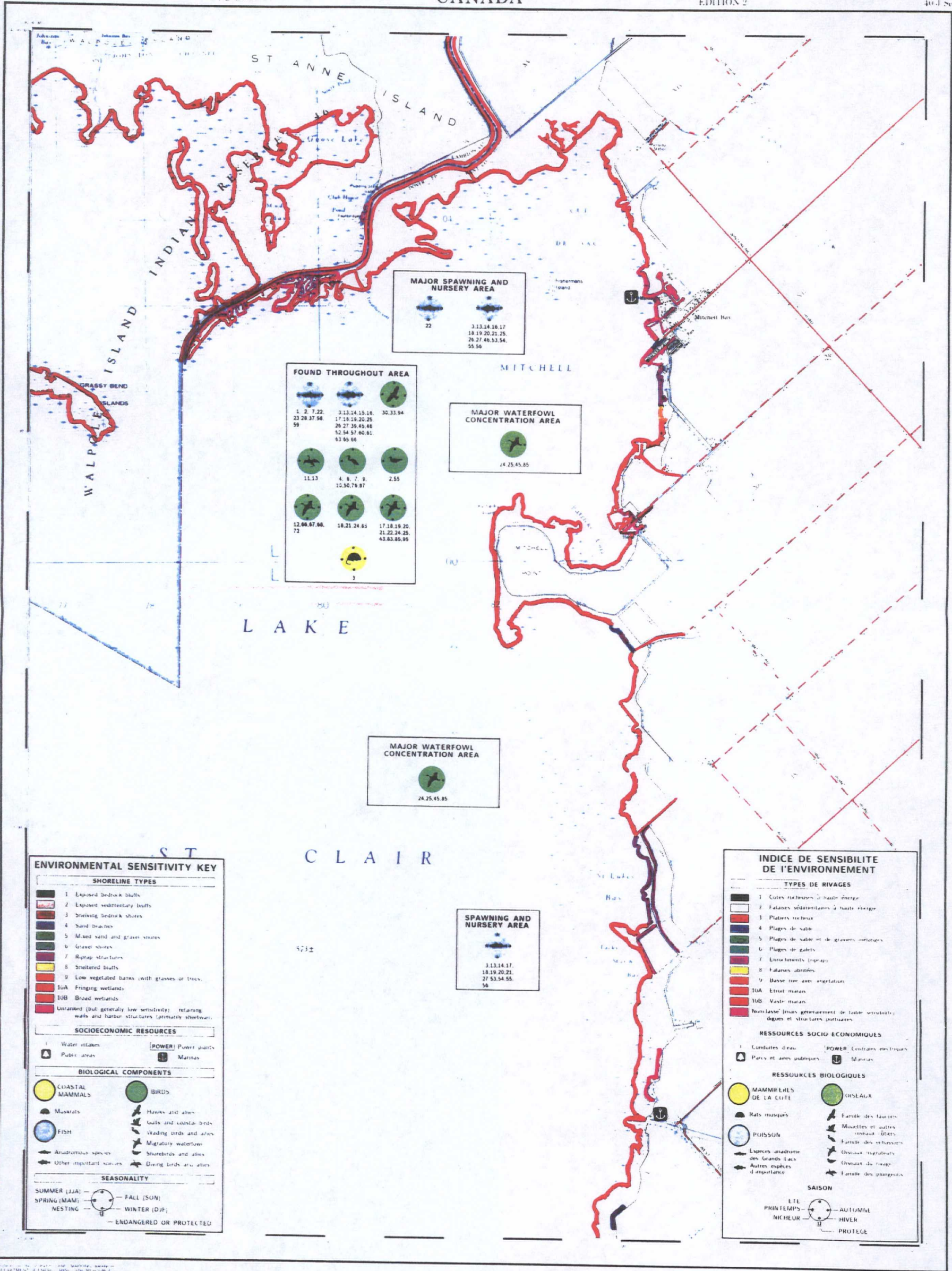
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MAP
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ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA

COASTAL SCIENCE & ENGINEERING INC.

ESE

MITCHELL BAY
ONTARIO

ADJOINS MAP #9

PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA

COASTAL SCIENCE & ENGINEERING INC.

ESE

CARTE
7

Examined by the U.S. Coast Guard
Captain of the Port Detroit

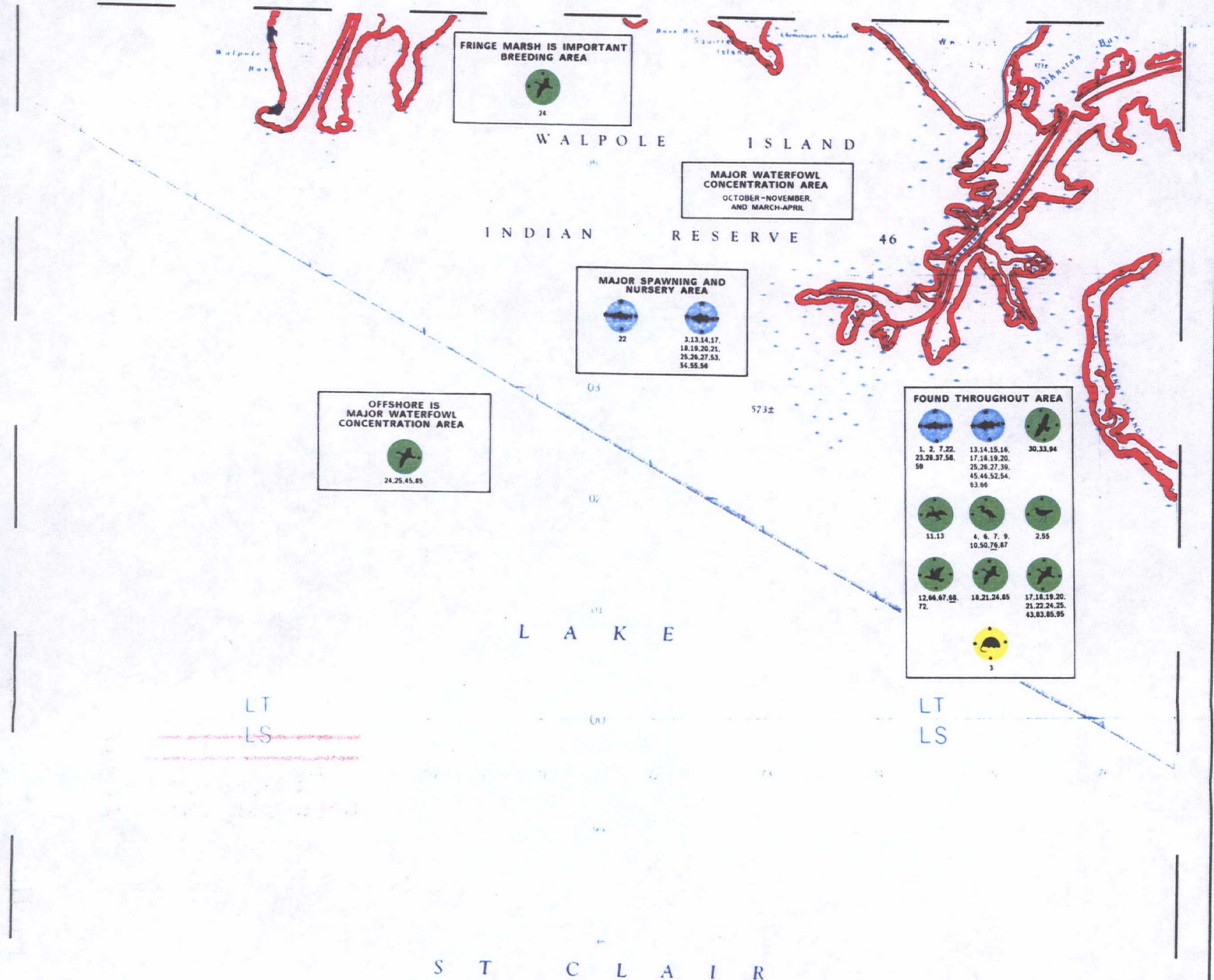
Signed _____

ADJOINS MAP #5

CANADA

EDITION 2

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ADJOINS MAP #7

ENVIRONMENTAL SENSITIVITY KEY

SHORELINE TYPES	
1	Exposed bedrock bluffs
2	Exposed sedimentary bluffs
3	Shelving bedrock shores
4	Sand beaches
5	Mixed sand and gravel shores
6	Gravel shores
7	Riprap structures
8	Sheltered bluffs
9	Low vegetated banks (with grasses or trees)
10A	Fringing wetlands
10B	Broad wetlands
11	Unrammed (but generally low sensitivity) retaining walls and harbor structures (primarily sheetwall)
SOCIOECONOMIC RESOURCES	
1	Water intakes
2	Public areas
POWER	Power plants
3	Marinas
BIOLOGICAL COMPONENTS	
COASTAL MAMMALS	BIRDS
Muskies	Hawks and allies
FISH	Gulls and coastal birds
Anadromous species	Wading birds and allies
Other important species	Migratory waterfowl
	Shorebirds and allies
	Diving birds and allies
SEASONALITY	
SUMMER (JJA)	FALL (SON)
SPRING (MAM)	WINTER (DJF)
NESTING	
	ENDANGERED OR PROTECTED

INDICE DE SENSIBILITE DE L'ENVIRONNEMENT

TYPES DE RIVAGES	
1	Cotes rocheuses à haute énergie
2	Falaises sédimentaires à haute énergie
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5	Plages de sable et de graviers mélangés
6	Plages de galets
7	Enrochements (riprap)
8	Falaises abritées
9	Basse rive avec végétation
10A	Étroit marais
10B	Vaste marais
11	Nonclassé (mais généralement de faible sensibilité) - digues et structures portuaires
RESSOURCES SOCIO-ECONOMIQUES	
1	Conduites d'eau
2	Parcs et aires publiques
POWER	Centrales électriques
3	Marinas
RESSOURCES BIOLOGIQUES	
MAMMIFERES DE LA COTE	OISEAUX
Rats musqués	Famille des faucons
POISSON	Mouettes et autres oiseaux côtiers
Éspecies anadrome des Grands Lacs	Famille des échassiers
Autres espèces d'importance	Oiseaux migrateurs
	Oiseaux du rivage
	Famille des plongeurs
SAISON	
ETE	AUTOMNE
PRINTEMPS	HIVER
NICHEUR	PROTEGE

JOHNSTON CHANNEL

CAMPBELL COUNTY
ONTARIO

MAP
8

ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
3901 LAKE AVENUE EAST
TORONTO, ONTARIO M4T 1M2

COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29202

ESE

ADJOINS MAP #10

PREPARE POUR
PROTECTION DE L'ENVIRONNEMENT
ENVIRONNEMENT CANADA
3901 LAKE AVENUE EAST
TORONTO, ONTARIO M4T 1M2

COASTAL SCIENCE & ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA 29202

ESE

CARTE
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2.5 - DISPOSAL PLAN

Disposal of oil spill cleanup material will be performed in compliance with Federal and State laws regarding waste disposal. Detroit Edison's Greenwood and St. Clair Power Plants have the capability to use large quantities of fuel oil for boiler fuel. Recovered oil could be pumped to Greenwood via the pipeline or transported by trucks. Recovered oil could be shipped to St. Clair Power Plant via tanker truck or barge. If one of the site storage tanks is available, it could be used to store recovered oil. Tanks or barges could be brought to the site for temporary storage or transferring recovered oil to other oil burning facilities.

The terminal facility has an oily water waste treatment system capable of treating 144,000 gallons per day.

Solid waste such as contaminated soils and absorbent materials can be temporarily stored on the site in roll off boxes supplied by the OSRO.

Depending on the characteristics of the solid waste, it may be possible to blend limited quantities of material (i.e., contaminated soil) with coal being transferred into the plant for boiler fuel. This operation would require approval of regulatory agencies.

Environmental Program #5 (WASTE DISPOSAL will provide additional information on waste disposal. Environmental Program # 5 is located in electronic format on the DTE Environmental management & Resources Website. Refer to the electronic copy on the website for the most up to date document.

2.5.1 – ENVIRONMENTAL PROGRAM #5 (WASTE DISPOSAL)

On the following pages is ENVIRONMENTAL PROGRAM #5 (WASTE DISPOSAL)

The purpose of this Environmental program is to establish procedures and assign responsibilities for the disposal of waste material.

This document is 25 pages long and was last revised 04-18-2008. Always refer to the electronic copy on the EM&R website for the most current copy.

**DTE Energy Environmental Program Series
Environmental Program 05**

**Waste Management and Material Disposal
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2.0	<u>PURPOSE</u>	2
3.0	<u>DEFINITIONS</u>	2
4.0	<u>REQUIREMENTS</u>	5
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Revision 0
Page 1 of 25

DTE Energy Environmental Program Series
Environmental Program 05

Waste Management and Material Disposal

1.0 APPLICABILITY

This Environmental Program applies to any DTE Energy organization that generates or stores wastes, to include hazardous wastes, liquid industrial wastes, and solid wastes (including medical wastes).

This program **DOES NOT** apply to either Asbestos or PCB oils.

This program **DOES NOT** apply to DTE Energy facilities outside the State of Michigan. These facilities are still required to comply with Federal and any State-specific environmental requirements concerning waste management and material disposal.

2.0 PURPOSE

This Environmental Program sets policy and provides regulatory compliance guidance and instruction for the identification, characterization and disposal of waste material within DTE Energy.

State and Federal hazardous waste regulations allow regulatory relief from certain provisions based upon the monthly amount of hazardous waste generated and accumulated on site. It is the policy of DTE Energy to operate its facilities in accordance with the requirements set forth for small quantity generators.

Although a site may strive for and achieve conditional small quantity exemption status, any variance from this policy must be in concurrence with corporate EM&R. This variance must be documented and available for inspection and audit purposes.

3.0 DEFINITIONS

- 3.1 **Disposal** – Any discharge, deposit, injection, dumping, spilling, leaking, or placing of solid waste or hazardous waste into or on any land or water and the possibility exists that the waste material may enter the surrounding environment or discharge into any waters.
- 3.2 **DOT Empty** – Under DOT Hazardous Material Regulations, a container is considered “empty” for transport, if it has been cleaned and purged of vapor so as to no longer pose a DOT hazard or has been refilled with a non-hazardous material to such an extent that the resulting package no longer poses a DOT hazard. See also the definition of RCRA Empty.
- 3.3 **Empty Container** – A container that, if staying onsite after use, must meet EPA specifications. If the container is being shipped, it must meet DOT requirements.
- 3.4 **Generator Status (for Hazardous Waste)**

NOTE: *Determination of generator status includes amount of waste generated in a month and weight of wastes accumulating in satellite collection and hazardous waste accumulation areas.*

NOTE: *Universal waste is not included when determining generator status.*

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Revision 0
Page 2 of 25

DTE Energy Environmental Program Series
Environmental Program 05

- 3.4.1 **Large Quantity Generator** – A Generator who produces 1,000 kg (2,200 lb.) or more hazardous waste material in one month or who accumulates 6,000 kg (13,200 lb.) or more hazardous waste material in any time period.
- 3.4.2 **Small Quantity Generator** – A Generator who produces from 100 kg (220 lb.) to less than 1,000 kg (2,200 lb.) of hazardous waste material in any one month of the year and who never accumulates 6,000 kg (13,200 lb.) or more hazardous waste material.
- 3.4.3 **Conditionally Exempt Small Quantity Generator (CESQG)** – A Generator who produces less than 100 kg (220 lb.) of hazardous waste material in one month.
- 3.5 **Hazardous Waste Generator** – Any person whose act or process produces hazardous waste.
- 3.6 **RCRA Empty** – A container is considered empty when all wastes, using the practices commonly employed to remove materials from a particular type of container, have been removed and no more than 1 inch of residue remains or no more than 3% by weight of the total capacity of the container remains, if the container is less than 110 gallons or no more than 0.3% by weight of the total capacity of the container remains if the container is greater than 110 gallons. For compressed gases, a container is considered empty when the pressure in the container approaches atmospheric. Also see definition for DOT empty.
- 3.7 **Recoverable Petroleum Product** – Off specification commercially available fuel which has been contaminated with water, dirt or soil, oils and/or other liquids or solids not identified as hazardous waste per 40 CFR Part 261. This material is available for energy recovery and is not considered a solid waste.
- 3.8 **Recyclable Material** – Materials that can be used again (e.g., used oil, paper, scrap metal, etc.).
- 3.9 **Satellite Collection Station** – A station, under the control of the operator of the process generating the waste, that allows for the indefinite accumulation of as much as 55 gallons of hazardous waste in containers at or near any point of generation.
- 3.10 **TSDF** – The acronym for a hazardous waste Treatment, Storage and Disposal Facility. In the Michigan Part 111 Hazardous Waste rules this is referred to as a “Designated Facility” meaning a TSDF fully licensed and permitted by an authorized state or federal EPA.
- 3.11 **Universal Waste Large Quantity Handler** – Any person who accumulates 5,000 kilograms or 11,000 pounds or more of universal waste at any one time.
- 3.12 **Universal Waste Small Quantity Handler** – Any person who accumulates less than 5,000 Kilograms or 11,000 pounds total of all universal waste at any one time.
- 3.13 **Used Oil** – Any oil that has been refined from crude oil, or synthetic oil, which has been used and as a result of such use is contaminated by physical or chemical impurities.
- 3.13 **Waste Accumulation Area** - The holding area for waste for a specified time as determined by generator status.

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3.14 Waste Types

3.14.1 Hazardous Waste – Any waste material specifically listed in the State of Michigan Natural Resources and Environmental Protection Act (NREPA), Part 111 or the Resource Conservation and Recovery Act (RCRA) regulations (listed waste) or any waste material that exhibits a hazardous characteristic as defined by State and RCRA regulations (characteristic waste).

A. Characteristic Waste – A waste that exhibits a hazardous characteristic:

1. **Ignitable** - A liquid having a flash point less than 140°F, a solid which is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard, an ignitable compressed gas (as defined in 40CFR 261.21(a)(3)) or an oxidizer such as a chlorate, permanganate, inorganic peroxide or a nitrate, that yields oxygen to stimulate the combustion of organic matter (see definition 49CFR 173.127).
2. **Corrosive** - A pH less than or equal to 2.0 or equal to or greater than 12.5.
3. **Reactive** - Capable of rapid or violent chemical reaction.
4. **Toxic** - Contaminants that fail the Toxic Characteristic Leaching Procedure (TCLP) test (see NREPA/Part 111 or 40CFR 261.24 for a complete list).

B. Listed Waste – A hazardous waste that is listed in 40CFR Part 261, Subpart D or NREPA/Part 111. These wastes may be generated from specific manufacturing processes and certain pure commercial chemical products (when discarded).

C. Universal Waste – These wastes are a special subset of hazardous waste and have streamlined and flexible regulations. These wastes are defined as:

1. Batteries (excluding car batteries),
2. Pesticides (there are specific qualifiers, contact the appropriate facility Environmental person for additional details),
3. Thermostats,
5. Mercury switches and Mercury thermometers,
6. Electric lamps (to include incandescent),
7. Electronic wastes including circuit boards, computers, printers, telephones,
8. Pharmaceuticals.

3.14.2 Liquid Industrial Waste - Any non-hazardous liquid waste (e.g., off-spec. used-oil, ethylene glycol, etc.).

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3.14.3 **Medical Waste** – A solid waste that is generated in the diagnosis, treatment or immunization of human beings or animals, including liquid human waste like blood and body fluids, (but not including urine or material stained with blood or body fluids) and sharps. (Ref. Michigan PA 368 of 1978)

3.14.4 **Solid Waste** - Any discarded, abandoned, or recycled material that is considered inherently waste-like.

CAUTION: WASTE SEGREGATION IS VITAL FOR FACILITIES TO ENSURE AN EFFECTIVE WASTE MINIMIZATION PROGRAM IS IMPLEMENTED.

4.0 Requirements

Facilities shall dispose of or recycle hazardous waste (including universal waste) through an approved hazardous waste facility.

4.1 Waste Characterization

4.1.1 Knowledge of the process creating the waste is essential. The best and first source of process knowledge comes from the area and employees directly generating a waste.

4.1.2 Further testing may be necessary to confirm whether the waste is hazardous.

4.1.3 Consult with Environmental Management & Resources regarding waste characterization.

4.1.4 Waste characterization shall be documented and kept on file.

4.2 Unknown Waste

4.2.1 Unknown wastes shall be assumed to be hazardous and treated as such until identified.

4.2.3 Proper labeling of all containers will minimize this circumstance.

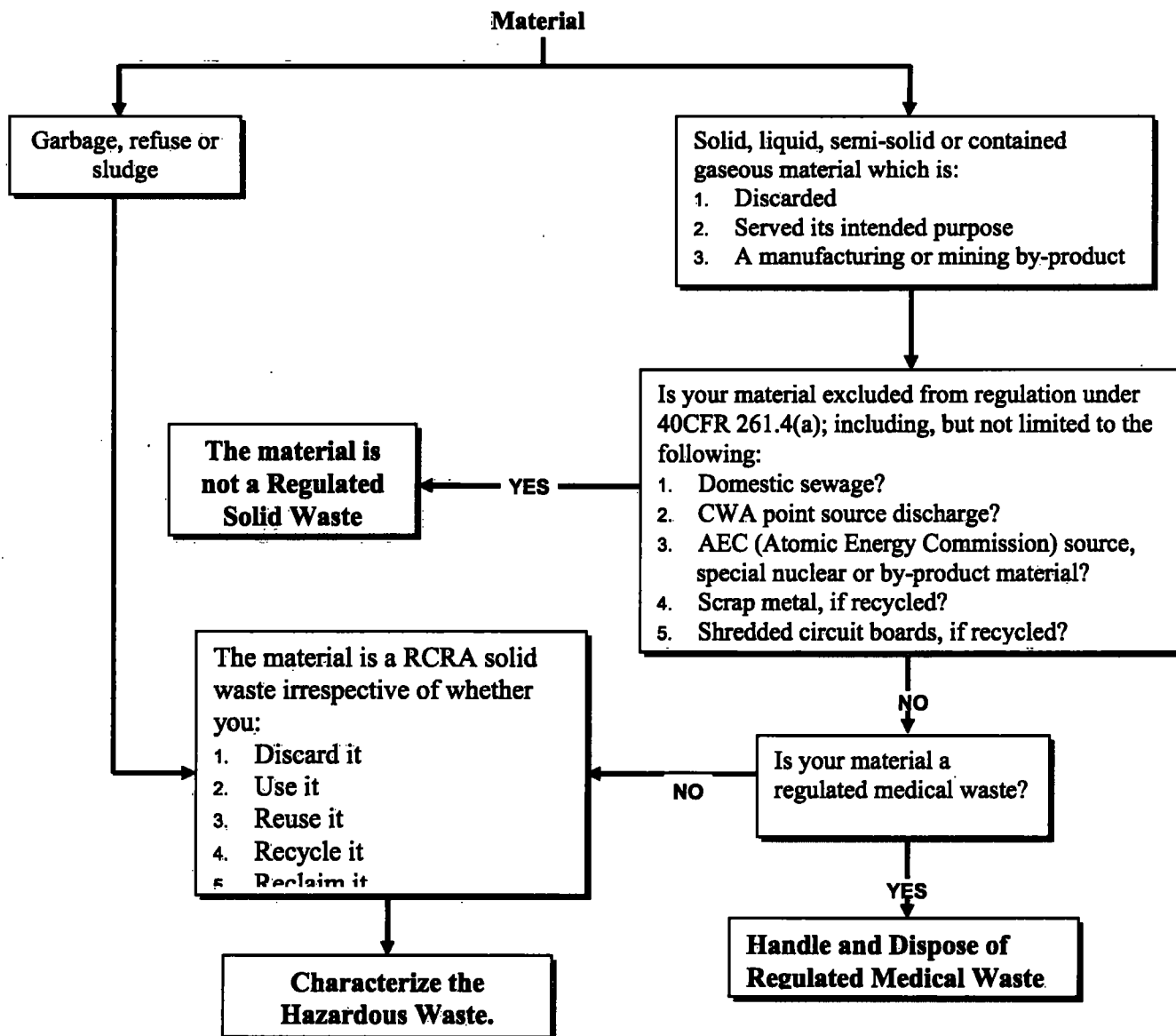
4.2.4 Unknown wastes shall be sampled and analyzed for hazardous constituents to determine proper disposal methods.

NOTE: *Contact Environmental Management & Resources for assistance, if unsure of any waste's composition and/or disposal method.*

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4.3 Characterizing A Solid Waste

The following process is useful when characterizing a solid waste:



CAUTION: DO NOT STOCKPILE SOLID WASTES. STORING A WASTE MAKES IT A SOLID WASTE AND REQUIRES CHARACTERIZATION OF THAT WASTE.

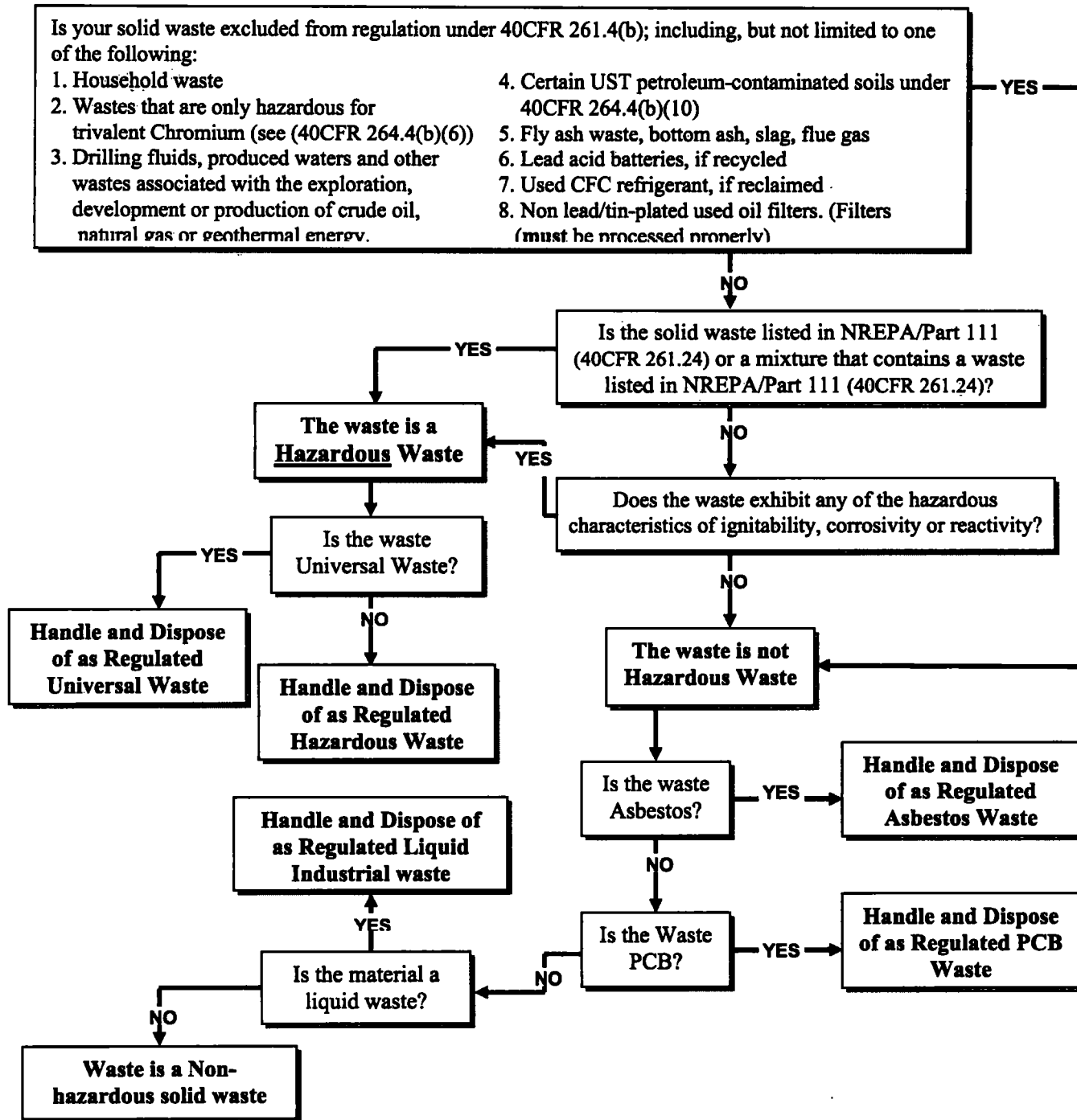
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4.4 Characterizing A Hazardous Waste:

The following process is useful when characterizing a hazardous waste:



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4.5 Characterizing Waste Streams

4.5.1 Waste and waste streams normally generated by a facility shall be characterized and documented.

4.5.2 Documentation should be similar to and include information contained in Example 2, *Waste Stream Characterization Report*.

NOTE: "Normally" is defined as waste streams that are collected over time or any wastes that are generated at least twice in a three-year period.

4.6 Generation Requirements for Fully Regulated Hazardous Waste

4.6.1 Packaging

- A. Place liquids in drums that meet DOT specifications for liquids (DECo Stock # 992-0092, Marking 1A1/Y1.8/250), or other DOT approved containers as accepted by facility Environmental personnel.
- B. Place solids in drums that meet DOT specifications for solids (DECo Stock # 992-0263, Marking 1A1/Y454/S), or other DOT approved containers as accepted by Environmental Management & Resources.
- C. DOT approved packaging may be reused for one-time shipments of hazardous waste for disposal. Additional guidance is available in the corporate DOT training packaging and the DOT regulations at 49CFR173.28.

4.6.2 Labeling

Complete hazardous waste label with the following information:

- A. Name: Detroit Edison – {Enter facility name}
- B. Address: {Enter facility address}
- C. EPA ID No.: {facility unique}
- D. EPA Hazardous Waste Number: {waste unique}
- E. Accumulation start date: {date the container is full, closed and ready for 90 or 180 day storage. The Accumulation start date applies to full satellite drums as well as those filled and closed outside of a satellite accumulation area.}



Typical Hazardous Waste Label

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4.6.3 Satellite Collection

- A. Satellite collection areas allow for long term, gradual accumulation of small amounts of hazardous waste (e.g., paint waste, etc.). The following requirements apply:
- B. Affix hazardous waste label on the upper third portion of the drum and where clearly visible.
- C. Only accumulate up to 55 gallons in the area.
- D. Accumulate hazardous waste at or near the point of generation and under control of the hazardous waste generator.
- E. Keep container closed except when adding waste.
- F. Enter accumulation start date when the container is full or when it is determined that the waste will no longer be generated.

4.6.4 Accumulation Area Requirements

- A. Transfer container to the waste accumulation area within three days of the accumulation start date.
- B. Accumulation area **must** be able to contain 10% of the volume of the containers, or the volume of the largest container, whichever is greater.
- C. Waste in the accumulation area must be placed on pallets or the area **must** be sloped in a manner that prevents water buildup.

4.6.5 Accumulation time requirements:

- A. Conditionally Exempt Small Quantity Generator (CESQG): There is no time limit and generally these generators do not have accumulated waste onsite.
- B. Small Quantity Generator (SQG): Ship hazardous waste within 180 days from the Accumulation start date. SQG's may accumulate up to 13,200 pounds onsite at anytime.
- C. Large Quantity Generator (LQG): Ship hazardous waste within 90 days from the Accumulation start date. LQG's may accumulate over 13,200 pounds onsite at anytime.
- D. Small Quantity and Large Quantity Generators must perform weekly inspections of the waste accumulation area. (Recommendation only for CESQG)
- E. Inspect the area for the following items (See Attachment 3 for Sample Inspection form):
 - 1) Container integrity,
 - 2) Container labeled properly (hazardous waste label, waste number(s) and accumulation start date),
 - 3) Aisle space maintained,

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- 4) Storage area integrity,
 - i. Containment free of cracks and gaps.
 - ii. Liquids are stored away from edges of containment.
- 5) Good housekeeping,
- 6) Fire extinguishers available and inspected,
- 7) Spill kit available with adequate supplies,
- 8) No smoking sign posted,
- 9) Communication equipment available (e.g., radios, hi-com, telephone, etc.).
- F. Document the inspection to include name of inspector and date of inspection.
- G. Retain inspection documentation for three years.

4.6.6 Transport and Disposal Requirements

- A. DTE Energy approved hazardous waste transporters and disposal sites must be used.

CAUTION: ALWAYS VERIFY CURRENT DOT HAZARDOUS MATERIAL REGULATIONS ARE USED IN SELECTION OF DOT SHIPPING NAMES, PACKAGING REQUIREMENTS, MARKINGS, LABELS AND PLACARDS. THE DOT WEBSITE, [HTTP://HAZMAT.DOT.GOV](http://HAZMAT.DOT.GOV), CAN BE USED TO VIEW CURRENT REGULATIONS.

- B. Only DOT trained personnel may sign the Uniform Hazardous Waste Manifest. Manifest preparation is assigned to appropriately trained personnel at each facility. These personnel may refer to the training material for additional instruction.
- C. Land Disposal Restriction (LDR) Form Preparation is assigned to appropriately trained personnel at each facility. These personnel may refer to the training material or MDEQ website for State of Michigan hazardous waste regulations (<http://michigan.gov/DEQ>) for additional instruction.

4.6.7 Package Preparation

- A. Close package in accordance with manufacturer's closure instructions (e.g. torquing the drum lid closure device to specified amount)
- B. Complete the Hazardous Waste Label.
- C. Apply the DOT label(s) near the shipping name and I.D. number.

CAUTION: PERSONNEL MUST BE DOT TRAINED TO MOVE HAZARDOUS WASTE.

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- D. Load hazardous waste onto DOT authorized vehicle.
- E. If required, offer appropriate placard(s).
- F. Always maintain a set of placards on site and make available to transporter, as necessary.
- G. After manifest and LDR are signed, give appropriate copies to the transporter.

4.6.8 Recordkeeping

- A. Keep all manifests, LDR's, and waste characterizations, including analytical results indefinitely.
- B. Mail top copy of the manifest to the Michigan DEQ by the 10th day of the month following the shipment.
- C. Ensure the "return to generator" copy of the manifest is signed by TSDF and returned to the facility Waste Coordinator within 35 days.
- D. If the "return to generator" copy of the manifest is not received within 35 days, call the TSDF.
- E. If the "return to generator" copy of the manifest is not returned within 45 days, contact the appropriate EMR representative so that an exception report can be filed with the MDEQ.
- F. In accordance with Part 111 of Act 451, MDEQ must be notified if hazardous waste is being treated, disposed of, or stored in violation of this Act. Any person who suspects or has knowledge of the above should:
 - 1) Report any suspected violation to the appropriate Environmental Management & Resources person.
 - 2) Environmental Management & Resources (and Legal, Corporate Investigations) will review the situation and determine if reporting to the MDEQ is required.

4.7 Generation Requirements for Universal Waste

Universal waste applies to **batteries, electric lamps, thermostats, mercury switches** (to include other items that contain elemental mercury), **electronic wastes, pharmaceuticals, recalled pesticides and used or discarded antifreeze** characterized as a "characteristic" hazardous waste.

NOTE: *Used computers, printers, fax machines, cell phones or other electronic equipment containing circuit boards are collected by Investment Recovery for re-sale and re-use as described in DTE Policy OP-4. Most electronic equipment contains circuit boards which contain sufficient quantities of lead solder to classify it as a hazardous waste if disposed. Electronic wastes that can be reused or recycled are excluded from full regulation as a hazardous waste.*

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4.7.1 Packaging

- A. Fluorescent bulbs are collected in a container that is structurally sound and prevents release of contents.
- B. All other items are collected in a container that is structurally sound, kept closed, and compatible with the universal waste.
- C. Follow applicable DOT packaging requirements.

4.7.2 Labeling

- A. Each container **must** be labeled "Universal Waste." Either manufactured labels or hand-written labeling are allowed. Two examples of Universal Waste labels are:



Typical Universal Waste Labels

- B. Type of Universal Waste and collection start date must be included on the label.
- C. Follow applicable DOT labeling requirements.

4.7.3 Accumulation Requirements

- A. Collection time is one year from date the first item is placed in the container.
- B. Additional collection time may be allowed to completely fill the container.
- C. Containers must lack evidence of spillage or leakage.

4.7.4 Transport and Disposal

- A. A Bill of Lading shall be used as the shipping record except for Universal Waste Antifreeze which by Michigan Part 121 Liquid Industrial Waste Regs requires a uniform hazardous waste manifest.
- B. Follow applicable DOT shipping requirements.

4.7.5 Recordkeeping

- A. A copy of the Bill of Lading **should** be retained for three years at the facility.
- B. Follow recordkeeping requirements as described in 4.8.6.

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4.7.6 Release

- A. A release of universal waste or components of a universal waste shall be immediately contained.
- B. A determination shall be made whether any of the materials resulting from the release are hazardous waste.
- C. If the materials are a hazardous waste, the waste **must** be managed as hazardous waste.

4.8 Liquid Industrial Waste

CAUTION: PLACE DIFFERENT LIQUID WASTES IN SEPARATE CONTAINERS - DO NOT MIX DIFFERENT LIQUID WASTES. DO NOT ADD LIQUID WASTES TO A CONTAINER UNLESS IT IS SPECIFICALLY LABELED FOR THAT WASTE.

4.8.1 Packaging

Liquids may be placed in:

- A. DOT specification drums (DECo Stock # 992-0092, Marking 1A1/Y1.8/250), or other DOT approved containers as accepted by facility Environmental personnel.
- B. Tanks (preferably aboveground), which are located within, appropriate secondary containment.
- C. Regulated Underground Storage Tanks meeting leak detection requirements.

4.8.2 Labeling

- A. Used Oil containers, whether temporary or permanent, drums or tanks, must be clearly marked 'USED OIL.'
- B. Fill pipes leading to underground tanks must be labeled 'USED OIL.'
- C. Other Liquid Industrial Waste containers (e.g., used anti-freeze, used parts cleaner solvent, etc.) must also be clearly marked as to content.

4.8.3 Accumulation Area Requirements

- A. Non-hazardous liquid waste may be transferred to a designated area for temporary accumulation in preparation for disposal.
- B. Properly marked, filled drums may be moved to a staging area.
- C. Drum contents may be consolidated into tanks for storage awaiting transport for disposal, or directly into tanker trucks for transport for disposal.
- D. Containers are to be kept closed, except when adding waste.

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- E. Used oil containers, ready for offsite transportation, may be stored greater than 24 hours but must be offsite by less than 35 days. (Storage behind 35 days classifies the facility as a Used Oil Processor with many more regulatory requirements. Used Oil Processor regulations are found 40 CFR 279, Subpart F).

4.8.4 Staging for transport

- A. If drums are to be moved to a staging area, they must include a marking that adequately identifies the contents.
- B. Staging areas should have secondary containment appropriate to the volume of liquid wastes likely to be staged.

4.8.5 Transport and Disposal

- A. Use only DTE Energy approved liquid industrial waste transporters and disposal sites.
- B. Manifest preparation is assigned to appropriately trained personnel at each facility. Personnel can refer to site and waste specific example manifests for guidance.
- C. Send the Uniform Hazardous Waste Manifest and the analytical results to the Facility Waste Coordinator.
- D. If liquid industrial waste is moved from one DTE Energy location to another using Company vehicles, a waste movement form needs to be completed. (See Example 1, Waste Movement Form) Follow tracking procedures identified on Example 1.

4.8.6 Record keeping

- A. Keep manifests, waste characterizations and analytical results indefinitely.
- B. Mail top copy of the manifest to the State agency by the 10th day of the monthly following the shipment.
- C. Ensure the "return to generator" copy of the manifest is signed by TSDF and returned to the facility Waste Coordinator within 35 days.
- D. If the "return to generator" copy of the manifest is not received within 35 days, call the TSDF.
- E. If the "return to generator" copy of the manifest is not returned within 45 days, contact the appropriate EMR representative so that an exception report can be filed with the MDEQ.

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4.9 Non-Hazardous Solid Waste

NOTE: *Every attempt should be made to recycle wastes in accordance with the DTE Energy Way – Environmental Protection.*

4.9.1 Examples of Non-Hazardous Wastes include:

- A. Trash
 - 1. A Bill of Lading is not required for trash.
 - 2. Trash or ash waste **must** be free of hazardous materials and liquids.
- B. Scrap metal (e.g., ferrous metals, empty aerosols, crushed drums, scrapped boiler tubes, etc.)
 - 1. **Do Not** discard in trash container.
 - 2. Special attention should be given to segregation of scrap metals, by type.
 - 3. Contact Investment Recovery for collection of special metals (e.g., lead, and wire).
- C. Non-organic construction/demolition wastes
 - 1. Some of this material may be recyclable.
 - 2. Contact EM&R to determine if the material can be considered inert.
- D. Demineralizer resin
 - 1. De-watered resin is a non-hazardous solid waste.
 - 2. Non de-watered resin may be hazardous or liquid industrial waste depending upon the pH of the solution. (Refer to Characterizing a Hazardous Waste, section 4.4)
- E. Petroleum contaminated solids
 - 1. Ensure no free flowing liquids.
 - 2. Disposal in a Class 2 landfill is required.
 - 3. A waste profile and confirming analysis may be required.
- F. Oil filters
 - 1. To be disposed of as trash, oil filters **must** be:
 - a) Punctured and hot drained, or
 - b) Crushed, or
 - c) Disassembled.
 - 2. Disposal of undrained filters **must** be characterized.

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G. Tires

1. **Must not** be included in trash.
2. Special arrangements are required for disposal. Contact EM&R for guidance in disposal.

H. Empty drums (generally < 1 inch of residue or for "acute" wastes, triple rinsed.)

1. Should be returned to the vendor.
2. Metal drums:
 - a) Are generally categorized as scrap metal.
 - b) **Must** be crushed before including with scrap metal.
3. Plastic drums **must** be cut apart prior to disposal as trash.

I. Empty totes

1. Returnable totes may be subject to DOT requirements. Contact the facility's Materials office for guidance.
2. Non-returnable totes **must** be disassembled prior to disposal as trash.

J. Lead acid batteries

1. **Must** be recycled.
2. Contact the appropriate Materials Group for pickup arrangements.

K. Ash Waste

CAUTION: ASH WASTE IS A REGULATED SOLID WASTE. STATE OF MICHIGAN SOLID WASTE RULES REQUIRE THAT ASH BE EITHER PROPERLY LAND FILLED OR PROPERLY PREPARED (STABILIZED AND/OR SEALED) BEFORE USE ON LAND.

1. Do not mix other waste with ash.
2. If possible, sell ash waste using established contracts.
3. Forward ash to approved landfills in accordance with a solid waste license.
4. Transport ash in a manner that minimizes vehicle fugitive dust releases.
5. Dewater waste appropriately before shipping to the landfill.
 - a) Ash waste management/transportation needs to minimize the amount of water in ash waste.
 - b) Landfills are not allowed to dispose liquid waste. The ash waste being disposed must be able to pass the paint filter test (if a certain amount of liquid can run through a filter, then the waste is considered a liquid waste).

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4.9.2 Transport and Disposal

- A. A Bill of Lading form (e.g., DE 963-1179 or equivalent) shall be prepared and accompany the shipment to the disposal, except for trash and ash wastes.
- B. The Bill of Lading shall include:
 - 1. A description of the waste and the quantity generated. The origin of how the waste was generated should also be included.
 - 2. The generator may contact the facility Environmental personnel or Corporate Environmental Management & Resources for assistance in the proper description of the waste.
- C. Complete any shipping documentation required by the landfill.
- D. Adhere to all applicable DOT rules for transportation.

4.10 Regulated Medical Wastes

The collection and handling of medical wastes fall under the jurisdiction of Corporate Safety's Bloodborne Pathogen program. Environmental personnel are responsible for the proper preparation and disposal of the waste.

NOTE: Razors are not "sharps" under the Medical Waste Program and should not be collected in red "sharps" containers. Syringes must be collected in the red "sharps" containers.

Medical waste is normally generated and handled by the site's nursing staff. Collection areas should be limited to the First Aid Stations (FAS).

4.10.1 Accumulation Time and Packaging

- A. All medical waste must be removed from site and sent for disposal every 90 days or less.
- B. All medical waste that is collected for disposal must be placed in a box, or tub which is lined with a plastic bag.
- C. The liner must be taped in a gooseneck fashion, twisted in a knot or tied, and completely secured to prevent odor or leakage.
- D. The box must be securely closed at top and bottom with packing tape, or the lid for the tub must be securely snapped shut.
- E. Small transport containers measure 9 X 18 X 24 and hold 25 pounds of waste. Large transport containers measure 18 X 18 X 24 and hold 50 pounds of waste.
- F. Sharps must be placed in puncture resistant containers.

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4.10.2 Labeling

- A. Medical Waste bags are translucent red and are pre-printed with the words "Regulated Medical Waste" or "Regulated Medical Waste nos" and the Biohazard label.
- B. Medical Waste outer boxes and Sharps containers are also preprinted with the DOT proper shipping name (verify appropriate shipping description as required by the DOT Hazardous Material Regulations) and the Biohazard label. No additional DOT labels are required if the biohazard label is present.

4.10.3 Recordkeeping

- A. Preprinted Medical Waste manifests are generally provided as a service by the transporter/disposal vendor.
- B. Only DOT trained personnel may sign the Uniform Hazardous Waste Manifest. These personnel may refer to the training material for additional instruction.
- C. Medical Wastes manifests should be kept indefinitely.

4.11 Recoverable Petroleum Products - RPP

NOTE: *Material defined as recoverable petroleum product is regulated as a Michigan Liquid Industrial Waste and must be transported using a Uniform Hazardous Waste Manifest.*

4.11.1 Packaging – RPP must be packaged using DOT approved performance packaging for liquids (DECo Stock # 992-0092, or equivalent) Marking 1A1/Y1.8/250.

4.11.2 Labels – Drums containing RPP can be identified as such using a permanent paint stick marker and the words – "Recoverable Petroleum Product – Gasoline and Water" or "Recoverable Petroleum Product – Diesel Fuel and Water".

4.11.3 Recordkeeping

- A. Only DOT Shipper trained personnel may prepare and sign the Uniform Hazardous Waste Manifest. Manifest Preparation is assigned to appropriately trained personnel at each facility.
- B. Maintain all records indefinitely.

4.12 Waste Aerosol Cans

4.12.1 Aerosol Cans – "RCRA Empty" aerosol cans shall be collected as scrap metal for recycling.

- A. Aerosol cans that are partially filled or defective should be collected for either return to the manufacturer or characterization for disposal as a hazardous waste. Section 4.6.3 addresses requirements for satellite collection areas for hazardous waste.

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- B. Aerosol cans, characterized as hazardous waste, must be transported for disposal in accordance with DOT packaging exemption DOT SP- 11296.
 - 1. Ensure the site has a current copy of the exemption and complies with the all the required provisions.
 - 2. A current copy of DOT SP-11296 is available on the corporate EM&R website.
- C. Facilities that puncture aerosol cans and collect residual fluids shall generate site specific handling and characterizations procedures.

4.13 Other Wastes

- 4.13.1 **Circuit boards** – Non repairable, defective or broken circuit boards shall be collected by the instrument shop and sent to Investment Recovery for metal reclamation.
- 4.13.2 **Office Equipment** – Collection of used computers, fax machines, printers are coordinated by the Information Technology representative at the plant.
- 4.13.3 **Other Electronic Wastes** – Microwaves, televisions, etc. that are not collected by Information Technology or Investment Recovery are to be handled as a universal waste.

4.14 Emergency Planning

- 4.14.1 Large Quantity Generators are required to develop and maintain a contingency plan in the event of a hazardous waste release. Further guidance is available in training or at the state and federal regulatory links provided in this document.
- 4.14.2 Small Quantity and Conditionally Exempt Generators are required by regulation and policy to establish an emergency coordinator onsite or oncall, post emergency contact information near a telephone and ensure site employees are familiar with emergency procedure relevant to their job.
- 4.14.3 In case of any spill of a waste:
 - A. Follow the notification requirements identified in Environmental Program 03, Spill Prevention and Response.
 - B. Follow the facility's spill response plan, if applicable.

5.0 TRAINING

- 5.1 All hazardous waste generators shall complete annual hazardous waste training.
- 5.2 Personnel who will potentially handle hazardous waste shall complete a hazardous waste awareness training that informs them how to perform their duties in a way that ensures compliance with hazardous waste rules. Employees shall have refresher training every year.
- 5.3 New personnel who will potentially handle hazardous wastes shall also complete this training within six months of employment.

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- 5.4 Personnel who sign hazardous waste manifests shall successfully complete a DOT hazardous material shipper training program, then every three years thereafter.
- 5.5 Personnel who handle or manage universal waste shall be informed of the proper handling and emergency procedures appropriate for the type of waste they are handling.
- 5.6 Medical personnel will be trained by authorized health care contractor as required by Part 138, Medical Waste Regulatory Act, of the Michigan, Public Health Code, 1978 PA 368, as amended (ref. 325.1547).
- 5.7 All training shall be documented.

6.0 RESPONSIBILITIES

6.1 Organization Leadership is responsible for:

- Waste management and compliance of waste activity according to the requirements of this program.
- Developing and implementing procedures to comply with this program.
- Informing appropriate personnel of the requirements of this program.
- Maintaining a file of all records and reports required by this program.

6.2 Environmental Management & Resources is responsible for:

- Coordinating waste management activities as required by this program.
- Providing specialized training to Environmental personnel to ensure compliance with all appropriate requirements.
- Providing expertise in all hazardous waste activity (labeling, storage, manifesting, disposal, obtaining grab samples and performing analysis, etc.).
- Reviewing and revising this program triennially or when necessary.

6.3 All employees shall:

- Properly handle all wastes.
- Notify Environmental Management & Resources if they have knowledge that a waste is being treated, disposed of or stored in violation of the Michigan Hazardous Waste Management Act.
- Contact the appropriate facility Environmental person if questions arise regarding waste or waste disposal.

6.4 The authorized health care provider is responsible for

- Disposing of all medical wastes generated.

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7.0 REFERENCES

- Resource Conservation and Recovery Act of 1976 (RCRA) and 40CFR 260-265, 268, 273, and 279.
- Department of Transportation (DOT), Hazardous Material Regulations (HMRs), 49CFR 171-173, 178-179.
- Michigan Public Act 451:
 - Part 111, "Hazardous Waste Management."
 - Part 121, "Liquid Industrial Waste."
 - Part 115, "Solid Waste Management."
 - Part 368, Medical Waste
- DTE Energy Way, Environmental Protection
- Local County requirements for waste importing or exporting.

8.0 IMPLEMENTATION PLAN

This Environmental Program is effective when approved. Approval will be communicated to all organizations by Corporate Communications. Organizations should review this program for applicability and should ensure compliance, when applicable. Organization-specific procedures should be reviewed to ensure accuracy and compliance with this program. Fossil Generation should consider eliminating Power Plant Order 226, Waste Material Disposal, in that EM&R will maintain this program.

9.0 ENVIRONMENTAL CONTACT: Rebekah Cook, cookr@dteenergy.com

10.0 ATTACHMENTS (all forms available on the EM&R Master Forms List)

Example 1, Waste Movement Form.

Example 2, Waste Stream Characterization Report.

Example 3, Sample 90 Day Hazardous Waste Accumulation Site Inspection.

11.0 Revision History (maintain 3 year revision history, minimally)

Revision No.	Changes	Author	Date
0	New Environmental Program	R. Cook	4/18/08

Skiles W. Boyd /s/

Approved For Use:

4/18/08

Date

Skiles W. Boyd
Vice President, Environmental Management & Resources
DTE Energy Corporate Services, LLC

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Example 1

WASTE MOVEMENT FORM

ETS #: _____

From Location: _____

(Address of waste generation)

MID: _____

(If Applicable)

Prepared By: _____

(Name "Print")

(Signature)

Date: _____

Ship to Location #1: _____

MID: _____

Address: _____

Date Shipped: _____

Qty. Of Waste	Number Of Drums	Waste Shipping Name	Additional Description (Circle)
Gal.			

First Transporter _____

(Name "Print")

(Signature)

Company Name: _____

MID: _____

Final Ship To: _____

MID: _____

Location: _____

Final Transporter: _____

(Name "Print")

(Signature)

Date: _____

Company Name: _____

MID: _____

(For Liquid Shipments)

Received By: _____

(Name "Print")

(Signature)

Remarks: _____

Return Completed Form Within 35 Days To: _____

(Name)

(Address)

Michigan Department of Environmental Quality requires that a summary of liquid industrial waste movement on this form be supplied on a yearly basis (Jan. 1 – Dec. 31)

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Date Completed or Revised: _____

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Example 3

Hazardous Waste Information Sheet

The weekly inspection must bear the date of the inspection and the inspector's signature.

The number of containers (e.g., drums, etc.) must be noted. If there is no waste in the accumulation put "0" but still file the weekly inspection

Issue No. 1 on the form deals with container labeling and marking. At a minimum, the container must bear the words "Hazardous Waste" which is satisfied when a Hazardous Waste label is affixed to the container. The label also has an area where the "accumulation start date" is entered. This is the date that the waste began accumulation. Likewise, there is a spot for the EPA Waste Codes, which identifies the type of waste that is contained. For instance D001 is for Ignitable waste, D002 is corrosive, D003 is reactive, F001 is a solvent, and so on. These codes are determined by either generator knowledge or by laboratory analyses. The Plant Environmental Group assists in making this determination. Finally, look at the 'accumulation start date' and determine if the waste has exceeded 75 calendar days. If it has, immediately contact the Environmental group so that they can arrange for disposal.

Issue No. 2 deals with the safe handling of containers within the Accumulation Area. Check the liquid drum bungs to ensure they are hand tight, at a minimum. When they are shipped, the bungs must be torqued to drum manufacturer specifications; however, this is the responsibility of the Plant's Environmental Group. Solid drum rings must be seated properly and the bolt hand fastened. Inspect the containers for dents, bulging, abnormal rusting or similar conditions that might compromise the integrity of the container. Thoroughly inspect around the container for leaks. Certain chemicals can have an adverse effect on the container, which could cause a leak. Therefore corrosive wastes (e.g., caustic and acid, including batteries) must be in plastic drums, whereas most other non-corrosive materials can go in metal drums. All containers must be elevated from the ground. This can be accomplished by placing the container on a pallet, or in a hazardous waste storage shed with secondary containment. There must be adequate aisle space between drums to facilitate full inspection of the drum and to allow emergency equipment ingress and egress. Three feet aisle space is a good standard. Finally, containers of incompatible waste must be separated so that in the case of possible leakage, the chemicals will not intermingle. Examples of incompatibility are a caustic drum next to an acid drum, or an oxidizer chemical (like sodium hypochlorite) next to a flammable drum. These drums must be physically separated by adequate distance or in a separate building.

Issue No. 3 requires inspection of the containment area itself. There must be restricted access for approved personnel only. This is usually accomplished by locking gates or storage building doors. Containers must be protected from precipitation by the means of an adequate roof, inside a storage building, or providing plasticized drum covers to prevent precipitation accumulation on the container lid. The base of the containment area must be impervious. This includes free of cracks and openings that could allow leaking liquids from escaping. Using a hazardous waste storage building will meet compliance. There must be adequate spill containment materials present to help contain and stop a release of hazardous waste. Normally, Detroit Edison will contract a properly trained environmental contractor to respond and cleanup a hazardous waste spill. Nonetheless, simple spill control devices can be safely used to mitigate a condition without actually contacting the waste. This includes sorbent material, booms, and pads. Never take aggressive measures to contain and clean up a spill unless you've had the proper Hazwoper training. While in the Accumulation Area, the inspector must take in a communication device, such as a cell phone or radio, for emergency contact. There also has to be an alarm system that is operational. This can be a hard-wired alarm system such as a fire alarm, or as simple as an air-powered horn that can be used by the inspector in the event of an emergency. Fire fighting equipment must be present, including an adequate water supply and hose as well as charged A-B-C fire extinguishers. The hazardous waste storage shed may have its own automatic fire suppression system. Signs must be posted in the area to alert personnel that this is a Hazardous Waste Accumulation Area and that No Smoking is allowed. Finally, the inspector must determine if the Accumulation Area's housekeeping is adequate. There should be no combustible trash, etc. within the accumulation area, and it should not be used for the storage of other materials other than hazardous waste.

Questions or comments should be directed to the Environmental Management & Resources department

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Example 3

Hazardous Waste Information Sheet
90-Day Hazardous Waste Accumulation Site Inspection

No	Issue*	SATISFACTORY	UNSATISFACTORY	Comments
1	Container labeling and marking			
	a. Hazardous Waste label applied and readable from aisle			
	b. Accumulation Start Date			
	c. EPA waste code(s)			
	d. Accumulation date <75 days from today's date?			
2	Container handling			
	a. Bungs for liquid drums tight			
	b. Drum rings for solid drums secured			
	c. Containers in good condition, non-leaking			
	d. Containers compatible with waste			
	e. Containers not in direct contact with the ground			
	f. Adequate aisle spacing (3 ft. or more)			
	g. Containers of incompatible wastes are separated			
3	Containment area			
	a. Access restricted to authorized personnel only			
	b. Protected from precipitation			
	c. Free of cracks and openings			
	d. Free of spills or leaks from containers			
	e. Spill control equipment available			
	f. Communication available (radio, cell phone, etc.)			
	h. Alarms are installed and operating			
	i. Fire fighting equipment nearby (e.g. A-B-C extinguisher)			
	J No Smoking and Hazardous Waste signs posted			
	k. Housekeeping			

Any "unsatisfactory" condition must be reported to the facility Environmental group or EM&R immediately upon discovery.

Questions or comments should be directed to the Environmental Management & Resources department.

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3 - HAZARD EVALUATION

3.1 STORAGE TANK INFORMATION

Tank No./Name	Substance	Stored	Tank Type/Year	Maximum Capacity
A 001 Cutter Stock	Oil	0	Steel - 1979	675,000 Gallons
A 002 Metering	Oil	0	Steel - 1979	3,200,000 Gallons
A 003 Main Storage	Oil	0	Steel - 1979	17,000,000 Gallons

Total Capacity 20,875,000 Gallons

For labeled schematic drawing with tank location refer to last part of section 7.

There have not been any failures with tanks at this Facility. The berms are designed to contain 110% of the largest tank plus 25% of the remaining tanks at the site or 19.65 million gallons.

The Marysville Terminal Facility can provide storage for oil. The oil is then pumped to Greenwood Energy Center via pipeline. No. 2 or specification used oil is used to flush and as line pack in the pipeline once all the oil has been pumped to Greenwood.

There are no underground storage tanks at the Terminal Facility.

There are no Surface Impoundments at the Terminal Facility.

The daily throughput of oil is low and difficult to estimate because the facility's sporadic operation. The terminal operation is very dependent on the price of oil verses natural gas and coal which determines Greenwood Energy Center (electricity generation station) Operation. Operation of the terminal has decreased in recent years. All three tanks have been completely empty since 2007.

During 1998 the terminal facility pumped 637,000 barrels of oil. No operation in 1997, 1996 and 1995. In February 1994 the facility was used for 14 days to transfer 258,000 barrels. The next prior usage was in 1990 from February thru July when 351,000 barrels were transferred.

No CERCLA defined hazardous substances are stored at the Marysville Terminal Facility.

3.2. PRODUCT INFORMATION

Product Information (MSDS) are provided on the following pages for:

- No. 2 Fuel Oil
- No. 6 Fuel oil
- Specification Used Oil Example of # 400 oil from Edwards Oil Service, Inc.



Material Safety Data Sheet

MSDS ID NO.: 0117MAR019
Revision date: 02/09/2007

CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Marathon No. 2 Low Sulfur Fuel Oil Dyed 500 ppm Sulfur Max
Synonym: No. 2 Fuel Oil Dyed (0.05% Sulfur Max); No. 2 Fuel Oil Dyed 0.05% Sulfur Max; No. 2 NR 500 Fuel Oil Dyed; Fuel Oil No. 2, Non-Road Use, Dyed
Chemical Family: Petroleum Hydrocarbon
Formula: Mixture

Manufacturer:
Marathon Petroleum Company LLC
539 South Main Street
Findlay OH 45840

Other Information: 419-421-3070
Emergency telephone number: 877-627-5463

2. COMPOSITION/INFORMATION ON INGREDIENTS

No. 2 Fuel Oil is a complex mixture of paraffins, cycloparaffins, olefins and aromatic hydrocarbons having hydrocarbon chain lengths predominantly in the range of C11 through C20. May contain a trace amount of benzene (<0.01%). Can contain small amounts of red dye and additives (<0.15%) which are not considered hazardous at the concentrations used.

Product Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Marathon No. 2 Fuel Oil Dyed (0.05% Sulfur Max)	68476-30-2	100	Skin - potential significant contribution to overall exposure by the cutaneous route = 100 mg/m ³ TWA		

Component Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Saturated Hydrocarbons	Mixture	54-85			
Aromatic Hydrocarbons	Mixture	15-45			
Unsaturated Hydrocarbons	Mixture	1-6			
Naphthalene	91-20-3	0.1-0.5	Skin - potential significant contribution to overall exposure by the cutaneous route = 10 ppm TWA = 15 ppm STEL	= 10 ppm TWA = 50 mg/m ³ TWA = 15 ppm STEL = 75 mg/m ³ STEL	

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

EMERGENCY OVERVIEW

FUEL OIL IS A RED COLORED LIQUID. THIS PRODUCT IS CONSIDERED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE KEPT AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. NEVER SIPHON THIS PRODUCT BY MOUTH. IF SWALLOWED, THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH. PROLONGED OR REPEATED SKIN CONTACT CAN CAUSE DEFATTING AND DRYING OF THE SKIN WHICH MAY PRODUCE SEVERE IRRITATION OR DERMATITIS.

OSHA WARNING LABEL:

WARNING.

COMBUSTIBLE LIQUID.

ASPIRATION (INADVERTENT SUCTION) OF LIQUID INTO THE LUNGS CAN PRODUCE CHEMICAL PNEUMONIA OR EVEN DEATH.

PRODUCES SKIN IRRITATION UPON PROLONGED OR REPEATED CONTACT.

CONSUMER WARNING LABEL:

A CONSUMER WARNING LABEL IS NOT APPLICABLE FOR THIS PRODUCT.

Inhalation:

Exposure to high vapor concentrations may produce headache, giddiness, vertigo, and anesthetic stupor.

Ingestion:

Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration (inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema/hemorrhage and even death.

Skin contact:

Prolonged and repeated liquid contact can cause defatting and drying of the skin and can lead to irritation and/or dermatitis.

Eye contact:

Produces little or no irritation on direct contact with the eye.

Carcinogenic Evaluation:

Product Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Marathon No. 2 Fuel Oil Dyed (0.05% Sulfur Max) 68476-30-2	NE		A3 - Confirmed animal carcinogen with unknown relevance to humans (as total hydrocarbons)	

Notes:

The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of diesel fuel/fuel oil in humans. IARC determined that there was limited evidence for the carcinogenicity of marine diesel fuel in animals. Distillate (light) diesel fuels were not classifiable as to their carcinogenicity to humans (Group 3A).

IARC has determined that there is sufficient evidence for the carcinogenicity in experimental animals of diesel engine exhaust and extracts of diesel engine exhaust particles. IARC determined that there is only limited evidence for the carcinogenicity in humans of diesel engine exhaust. However, IARC's overall evaluation has resulted in the IARC designation of diesel engine exhaust as probably carcinogenic to humans (Group 2A) because of the presence of certain engine exhaust components.

Component Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Naphthalene 91-20-3	Monograph 82, 2002	Reasonably Anticipated To Be A Carcinogen Listed	A4 - Not Classifiable as a Human Carcinogen	Present

Notes:

The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene could be a possible human carcinogen.

4. FIRST AID MEASURES

Inhalation:

If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. If symptoms or irritation occur with any exposure, call a physician.

Skin contact:

Wash with soap and large amounts of water. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion:

If swallowed, do not induce vomiting and do not give liquids. Immediately call a physician.

Eye contact:

Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician.

Medical conditions aggravated by exposure:

Pre-existing skin conditions and respiratory disorders may be aggravated by exposures to components of this product.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:

For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards:

This product has been determined to be a combustible liquid per the OSHA Hazard Communication Standard and should be handled accordingly. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Special protective equipment for firefighters:

Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

Flash point:

130-190 F

Autoignition temperature:

637 F

Flammable limits in air - lower (%):

0.7

Flammable limits in air - upper (%):

5.0

NFPA rating:

Health: 1

Flammability: 2

HMIS classification:

Health: 1

Flammability: 2

Reactivity: 1
Other: -

Reactivity: 1
Special: *See Section 8 for guidance in selection of personal protective equipment.

6. ACCIDENT RELEASE MEASURES

Personal precautions:

Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. Advise authorities and National Response Center (800-424-8802) if substance has entered a watercourse or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids.

7. HANDLING AND STORAGE

Handling:

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues.

Avoid repeated and prolonged skin contact. Never siphon this product by mouth. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Engineering measures:

Local or general exhaust required when using at elevated temperatures that generate vapors or mists.

Respiratory protection:

Use approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible limits or excessive vapors are generated. Observe respirator protection factor criteria cited in ANSI Z88.2. Self-contained breathing apparatus should be used for fire fighting.

Skin and body protection:

Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride and polyurethane gloves to prevent skin contact.

Eye protection:

No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields.

Hygiene measures:

No special protective clothing is normally required. Select protective clothing depending on industrial operations. Use mechanical ventilation equipment that is explosion-proof.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Red Liquid

Physical state (Solid/Liquid/Gas):

Liquid

Substance type (Pure/Mixture):

Mixture

Color:

Red

Odor:

Slight Hydrocarbon

Molecular weight:

180

pH:

Neutral

Boiling point/range (5-95%):

400-640 F

Melting point/range:

Not determined.

MSDS ID NO.: 0117MAR019

Product name: Marathon No. 2 Low Sulfur Fuel
Oil Dyed 500 ppm Sulfur Max

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Decomposition temperature:	Not applicable.
Specific gravity:	C.A. 0.8
Density:	6.76 lbs/gal
Bulk density:	No data available.
Vapor density:	4-5
Vapor pressure:	1-10 mm Hg @ 100 F
Evaporation rate:	No data available.
Solubility:	Negligible
Solubility in other solvents:	No data available.
Partition coefficient (n-octanol/water):	No data available.
VOC content(%):	10%
Viscosity:	1.9-3.4 @ 40 C

10. STABILITY AND REACTIVITY

Stability:	The material is stable at 70 F, 760 mm pressure.
Polymerization:	Will not occur.
Hazardous decomposition products:	Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.
Materials to avoid:	Strong oxidizers such as nitrates, perchlorates, chlorine, fluorine.
Conditions to avoid:	Excessive heat, sources of ignition and open flames.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product Information:

Name	CAS Number	Inhalation:	Dermal:	Oral:
Marathon No. 2 Fuel Oil Dyed (0.05% Sulfur Max)	68476-30-2	>2 mg/l for 4 hr [Dog]	>5 ml/kg [Rabbit]	9-16 ml/kg [Rat]

Lifetime skin painting studies in animals with similar distillate fuels have produced weak to moderate carcinogenic activity following prolonged and repeated exposure. Similar middle distillates, when tested at nonirritating dose levels, did not show any significant carcinogenic activity indicating that this tumorigenic response is likely related to chronic irritation and not to dose. Repeated dermal application has produced severe irritation and systemic toxicity in subacute toxicity studies. Some components of this product, have been shown to produce a species specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Subsequent research has shown that the kidney damage develops via the formation of a alpha-2μ-globulin, a mechanism unique to the male rat. Humans do not form alpha-2μ-globulin, therefore, the kidney effects resulting from this mechanism are not relevant in humans. Some components of this product were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known.

Summary of health effect data on distillate fuel components:

This product may contain >0.1% naphthalene. Exposure to naphthalene at 30 ppm for two years caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. Exposure to 10-60 ppm naphthalene for 2 years caused tumors in the tissue lining of the nose and respiratory tract in male and female rats. Oral administration of 133-267 mg/kg/day of naphthalene in mice for up to 90 days did not produce mortality, systemic toxicity, adversely affect organ or body weight or produce changes in blood. Repeated oral administration of naphthalene produced an anemia in dogs. Repeated intraperitoneal doses of naphthalene produced lung damage in mice. Repeated high doses of naphthalene has caused the formation of cataracts and retinotoxicity in the eyes of rats and rabbits due to accumulation of 1,2-naphthoquinone, a toxic metabolite. Effects in human eyes is uncertain and not well documented. Pregnant rats administered intraperitoneal doses of naphthalene during gestation gave birth to offspring that had delayed heart and bone development. Pregnant mice given near lethal doses of naphthalene showed no significant maternal toxicity and a reduction in the number of pups per litter, but no gross abnormalities in offspring. Suppressed spermatogenesis and progeny development have been reported in mice, rats and guinea pigs after exposure to high concentrations of naphthalene in their drinking water. Certain groups or individuals, i.e., infants, Semites, Arabs, Asians and Blacks, with a certain blood enzyme deficiency (glucose-6-phosphate dehydrogenase) are particularly susceptible to hemolytic agents and can rapidly develop hemolytic anemia and systemic poisoning from ingestion or inhalation of naphthalene.

Summary of health effect information on diesel engine exhaust:

Chronic inhalation studies of whole diesel engine exhaust in mice and rats produced a significant increase in lung tumors. Combustion of kerosine and/or diesel fuels produces gases and particulates which include carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur and hydrocarbons. Significant exposure to carbon monoxide vapors decreases the oxygen carrying capacity of the blood and may cause tissue hypoxia via formation of carboxyhemoglobin.

Ecotoxicity effects:

Product can cause fouling of shoreline and may be harmful to aquatic life in low concentrations. The 96 hour LL50 values for an accommodated fraction (WAF) of fuel oil ranged from 3.2 to 65 mg/l in fish and 2-210 mg/l in invertebrates. EL50 values for inhibition of algal growth ranged from 1.8 to 2.9 mg/l for No. 2 fuel oil and from 10 to 78 mg/l for diesel fuel. This product does not concentrate or accumulate in the food chain. If released to soil and water, this product is expected to biodegrade under both aerobic and anaerobic conditions.

Cleanup Considerations:

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of an "characteristic" hazardous waste. This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:

Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.

Proper shipping name: Fuel Oil, No. 2
UN/Identification No: NA 1993
Hazard Class: 3
Packing group: III
DOT reportable quantity (lbs): Not applicable.

TDG (Canada):

Proper shipping name: Fuel Oil, No. 2
UN/Identification No: NA 1993
Hazard Class: 3
Packing group: III
Regulated substances: Not applicable.

15. REGULATORY INFORMATION**Federal Regulatory Information:**

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA Hazard Communication Standard: This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Naphthalene	NA

SARA Section 304: This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Naphthalene	= 0.454 kg final RQ = 1 lb final RQ = 100 lb final RQ = 45.4 kg final RQ

SARA Section 311/312:

The following EPA hazard categories apply to this product:

Acute Health Hazard
 Fire Hazard
 Chronic Health Hazard

SARA Section 313:

This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name	CERCLA/SARA 313 Emission reporting:
Saturated Hydrocarbons	None
Aromatic Hydrocarbons	None
Unsaturated Hydrocarbons	None
Naphthalene	= 0.1 % de minims concentration

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

Saturated Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Aromatic Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Unsaturated Hydrocarbons

MSDS ID NO.: 0117MAR019

Product name: Marathon No. 2 Low Sulfur Fuel
 Oil Dyed 500 ppm Sulfur Max

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Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Listed
New Jersey Right-To-Know:	Listed
Pennsylvania Right-To-Know:	Listed
Massachusetts Right-To Know:	Listed
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Listed
Illinois - Toxic Air Contaminants	Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Listed

Canadian Regulatory Information:

Canada DSL/NDL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Naphthalene	B4, D2A	1 %

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Craig M. Parker Manager, Toxicology and Product Safety

The information and recommendations contained herein are based upon tests believed to be reliable. However, Marathon Petroleum Company LLC (MPC) does not guarantee their accuracy or completeness nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage maybe required. MPC assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

End of Safety Data Sheet



Material Safety Data Sheet

MSDS ID NO.: 0159MAR019
Revision date: 07/25/2006

CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Marathon No. 6 Fuel Oil
Synonym: Bunker C Fuel; No. 6 Fuel Oil; No. 6 Residual Fuel
Chemical Family: Petroleum Hydrocarbon
Formula: Mixture

Manufacturer:
Marathon Petroleum Company LLC
539 South Main Street
Findlay OH 45840

Other Information: 419-421-3070
Emergency telephone number: 877-627-5463

COMPOSITION/INFORMATION ON INGREDIENTS

Heavy or Residual Fuel Oil is a complex mixture of high molecular weight hydrocarbons produced from high temperature treatment of heavy petroleum fractions.

This product was analyzed by MPC and found to contain 0.05-0.6% of the 22 3-7 ring polycyclic aromatic compounds identified as Persistent Bioaccumulative Toxic (PBT) Chemicals subject to reporting under EPA EPCRA Section 313 regulations.

Product Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Marathon No. 6 Fuel Oil	68553-00-4	100			

Component Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Petroleum Residua	Mixture	0-100			
Catalytic Cracked Clarified Oil	84741-82-4	0-90			
Diesel Oil	68334-30-5	0-30	= 100 mg/m ³ TWA vapor and aerosol, as total hydrocarbons skin - potential for cutaneous absorption (as total hydrocarbons)		
Sulfur Compounds	Mixture	0.5-4			
5-methylchrysene	3897-24-3	0.01-2			
Naphthalene	91-20-3	0.01-0.15	Skin - potential significant contribution to overall exposure by the cutaneous route = 10 ppm TWA = 15 ppm STEL	= 10 ppm TWA = 50 mg/m ³ TWA = 15 ppm STEL = 75 mg/m ³ STEL	
Benzo(a)phenanthrene	218-01-9	0.01-0.1	= 0.2 mg/m ³ TWA as benzene soluble aerosol	= 0.2 mg/m ³ TWA benzene soluble fraction	
Hydrogen Sulfide	7783-08-4	0-0.01	= 10 ppm TWA = 15 ppm STEL	= 10 ppm TWA = 14 mg/m ³ TWA = 15 ppm STEL = 21 mg/m ³ STEL	

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

EMERGENCY OVERVIEW

THIS PRODUCT IS A BROWN TO BLACK VISCOUS COLORED LIQUID. THIS PRODUCT IS CONSIDERED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE KEPT AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. LONG-TERM SKIN EXPOSURE TO COMPONENTS OF THIS PRODUCT HAS CAUSED CANCER IN LABORATORY ANIMALS AND HUMANS. REPEATED SKIN CONTACT TO SOME COMPONENTS OF THIS PRODUCT HAVE PRODUCED SYSTEMIC TOXICITY (INCLUDING LIVER DAMAGE) IN LABORATORY ANIMALS. WHEN HEATED THIS MATERIAL MAY VENT TOXIC LEVELS OF HYDROGEN SULFIDE (H₂S) VAPORS THAT ACCUMULATE IN THE VAPOR SPACES OF STORAGE AND TRANSPORT COMPARTMENTS. H₂S VAPORS CAN CAUSE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION AND ASPHYXIATION.

OSHA WARNING LABEL:**DANGER!****COMBUSTIBLE LIQUID.**

LONG-TERM SKIN EXPOSURE TO COMPONENTS OF THIS PRODUCT HAS CAUSED SKIN CANCER IN LABORATORY ANIMALS AND HUMANS.

REPEATED SKIN CONTACT TO SOME COMPONENTS IN THIS PRODUCT HAS PRODUCED SYSTEMIC TOXICITY (INCLUDING LIVER DAMAGE) IN LABORATORY ANIMALS.

MAY VENT HARMFUL CONCENTRATIONS OF HYDROGEN SULFIDE (H₂S) GAS WHICH CAN CAUSE RESPIRATORY IRRITATION AND ASPHYXIATION.

CONSUMER WARNING LABEL:

A CONSUMER WARNING LABEL IS NOT APPLICABLE FOR THIS PRODUCT.

Inhalation:

Exposure to vapor or mist may cause pulmonary irritation, dizziness, nausea and loss of consciousness. Significant concentrations of hydrogen sulfide gas can be present in the vapor space of storage tanks and bulk transport compartments (See Sections 7, 8 & 11).

Ingestion:

Product would be expected to have a low order of acute toxicity. Significant ingestion of some components of this product may cause liver damage.

Skin contact:

Prolonged and repeated liquid contact can cause dermatitis, folliculitis or oil acne. Components of this product may cause skin sensitization. Components of this product can cause liver damage if absorbed through the skin.

Eye contact:

Liquid or vapor contact may result in slight eye irritation.

Carcinogenic Evaluation:**Product Information:**

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Marathon No. 6 Fuel Oil 68553-00-4	NE			

Notes:

The International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence for the carcinogenicity of residual (heavy) fuel oil in animals.

Component Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
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Diesel Oil 68334-30-5	Monograph 45, 1989; (Overall evaluation upgraded from 3 to 2B with supporting evidence from other data relevant to the evaluation of carcinogenicity and its mechanisms)		A3 - Animal Carcinogen (as total hydrocarbons)	
5-methylchrysene 3697-24-3	Supplement 7, 1987; Monograph 32, 1983	Reasonably Anticipated To Be A Carcinogen (Listed under "Polycyclic aromatic hydrocarbons")		
Naphthalene 91-20-3	Monograph 82, 2002	Reasonably Anticipated To Be A Carcinogen Listed	A4 - Not Classifiable as a Human Carcinogen	Present
Benzo(a)phenanthrene 218-01-9	Supplement 7, 1987; Monograph 35, 1985	Known Carcinogen Reasonably Anticipated To Be A Carcinogen	A1 - Confirmed Human Carcinogen (as benzene soluble aerosol) A3 - Animal Carcinogen	Present

Notes:

The International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence for the carcinogenicity of catalytically cracked clarified oil (carbonblack feedstock) in animals.

The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of diesel fuel/fuel oil in humans. IARC determined that there was limited evidence for the carcinogenicity of marine diesel fuel in animals. Distillate (light) diesel fuels were not classifiable as to their carcinogenicity to humans (Group 3A)

The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have concluded that certain polycyclic aromatic hydrocarbons, i.e. (benzo(a)pyrene, benz(a)anthracene, benzo(a)phenanthrene, indeno(1,2,3-cd)pyrene, benzo(j)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, and 5-methylchrysene are probably carcinogenic to humans (Group 2A and B).

The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene could be a possible human carcinogen.

Inhalation:

If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. If symptoms or irritation occur with any exposure, call a physician.

Skin contact:

Wash with soap and large amounts of water for at least 15 minutes. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion:

Ingestion not likely. If swallowed, do not induce vomiting and do not give liquids. Immediately call a physician.

Eye contact:

Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician.

Medical conditions aggravated by exposure:

Preexisting skin conditions, respiratory disorders, and impaired liver function may be aggravated by exposure to components of this product.

Suitable extinguishing media:

For small fires, Class B fire extinguishing media such as CO₂, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFT/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards:

This product has been determined to be a combustible liquid per the OSHA Hazard Communication Standard and should be handled accordingly. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Special protective equipment for firefighters:

Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

Flash point:

140 (Min) F

Autoignition temperature:

765 F

Flammable limits in air - lower (%):

1.0

Flammable limits in air - upper (%):

6.0

NFPA rating:

Health: 2

Flammability: 2

Reactivity: 1

Other: -

HMIS classification:

Health: 2

Flammability: 2

Reactivity: 1

Special: *See Section 8 for guidance in selection of personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions:**

Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Advise authorities and National Response Center (800-424-8802) if substance has entered a watercourse or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return product to source.

7. HANDLING AND STORAGE**Handling:**

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues. This product may flash if product temperature is >140 F.

Harmful concentrations of hydrogen sulfide (H₂S) gas can be generated and accumulate in storage tanks and bulk transport compartments. Stay upwind and vent open hatches before unloading.

Avoid skin contact. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Never siphon this product by mouth.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**PERSONAL PROTECTIVE EQUIPMENT****Engineering measures:**

Local or general exhaust required in an enclosed area or when there is inadequate ventilation.

Respiratory protection: Not required under normal conditions and adequate ventilation. Use atmosphere supplying respirator in confined spaces when H2S concentrations exceed permissible limits. Self-contained breathing apparatus should be used for fire fighting.

Skin and body protection: Impermeable gloves (e.g., nitrile, viton, tyvek/saranex 23) to prevent skin contact.

Eye protection: Goggles and faceshield when handling hot material.

Hygiene measures: Use mechanical ventilation equipment that is explosion-proof. Chemical resistant apron or other protective clothing may be needed to avoid skin contact.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black Viscous Liquid
Physical state (Solid/Liquid/Gas):	Liquid
Substance type (Pure/Mixture):	Mixture
Color:	Black
Odor:	Hydrocarbon
Molecular weight:	Not determined.
pH:	Neutral
Boiling point/range (5-95%):	400-1200 F
Melting point/range:	Not determined.
Decomposition temperature:	Not applicable.
Specific gravity:	Not determined
Density:	7.3-9.3 lbs/gal
Bulk density:	No data available.
Vapor density:	No data available.
Vapor pressure:	1 mm Hg @ 160 F
Evaporation rate:	No data available.
Solubility:	Negligible
Solubility in other solvents:	No data available.
Partition coefficient (n-octanol/water):	No data available.
VOC content(%):	No data available.
Viscosity:	No data available.

STABILITY AND REACTIVITY

Stability:	The material is stable at 70 F, 760 mm pressure.
Polymerization:	Will not occur.
Hazardous decomposition products:	Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.
Materials to avoid:	Strong oxidizers such as nitrates, chlorates, peroxides.
Conditions to avoid:	Sources of heat or ignition.

TOXICOLOGICAL INFORMATION

Acute toxicity:

Product Information:

Name	CAS Number	Inhalation:	Dermal:	Oral:
Marathon No. 6 Fuel Oil	68553-00-4	No data available	>5 ml/kg [Rabbit]	4.7- >25 ml/kg [Rat]

Lifetime skin painting studies in animals with products similar to Heavy catalytic cracked distillate, No. 6 fuel oil and/or its components have produced tumors in animals following prolonged and repeated skin contact. Repeated dermal application has produced severe irritation and systemic toxicity in subacute toxicity studies. Some components of this product were found to be positive in some mutagenicity tests while negative in others. The exact relationship between these results and human health is not known.

Summary of health effect data on No. 6 fuel oil components:

This product contains diesel fuel (middle distillate) at a level of >1.0%. Lifetime skin painting studies in animals with similar distillate fuels have produced weak to moderate carcinogenic activity following prolonged and repeated exposure. Similar middle distillates, when tested at nonirritating dose levels, did not show any significant carcinogenic activity indicating that this tumorigenic response is likely related to chronic irritation and not to dose. Repeated dermal application has produced severe irritation and systemic toxicity in subacute toxicity studies.

This product may contain >0.1% naphthalene. Exposure to naphthalene at 30 ppm for two years caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. Exposure to 10-60 ppm naphthalene for 2 years caused tumors in the tissue lining of the nose and respiratory tract in male and female rats. Oral administration of 133-267 mg/kg/day of naphthalene in mice for up to 90 days did not produce mortality, systemic toxicity, adversely affect organ or body weight or produce changes in blood. Repeated oral administration of naphthalene produced an anemia in dogs. Repeated intraperitoneal doses of naphthalene produced lung damage in mice. Repeated high doses of naphthalene has caused the formation of cataracts and retinotoxicity in the eyes of rats and rabbits due to accumulation of 1,2-naphthoquinone, a toxic metabolite. Effects in human eyes is uncertain and not well documented. Pregnant rats administered intraperitoneal doses of naphthalene during gestation gave birth to offspring that had delayed heart and bone development. Pregnant mice given near lethal doses of naphthalene showed no significant maternal toxicity and a reduction in the number of pups per litter, but no gross abnormalities in offspring. Suppressed spermatogenesis and progeny development have been reported in mice, rats and guinea pigs after exposure to high concentrations of naphthalene in their drinking water. Certain groups or individuals, i.e., infants, Semites, Arabs, Asians and Blacks, with a certain blood enzyme deficiency (glucose-6-phosphate dehydrogenase) are particularly susceptible to hemolytic agents and can rapidly develop hemolytic anemia and systemic poisoning from ingestion or inhalation of naphthalene.

Catalytic cracked clarified oil (CCCO) may be present in concentrations up to 90% in this product. Lifetime skin painting studies in animals with CCCO have produced tumors in animals following prolonged and repeated skin contact. Repeated dermal application of CCCO (30 mg/kg/day for 13 weeks) in rats resulted in anemia, liver degeneration and injury to bone marrow and lymphoid tissues. 100% mortality was observed at 2,000 mg/kg/day within three weeks. Repeated dermal application (30 mg/kg/day) of CCCO to pregnant rats during gestation produced maternal and fetal toxicity, some deaths and systemic toxicity (liver, thymus and blood). The number of viable offspring decreased at doses of 30 mg/kg/day and above. Many of the developmental effects (anomalies, resorptions and growth inhibition) were observed at doses which produced maternal toxicity. In a separate developmental study CCCO produced decreases in body weight and food consumption at doses from 10-250 mg/kg/day. Although fertility and reproductive function were not affected, the no observable adverse effect level for CCCO administered dermally was 1 mg/kg/day.

This product contains polynuclear aromatic hydrocarbons (PAC) at a level of >0.1%. Some PAH's such as benzo(a)phenanthrene and 5-methylchrysene have been shown to be carcinogenic in experimental animals. An increased risk of cancer has been observed in workers employed in the aluminum production, coal gasification, coal-tar pitch, coke production and iron and steel industries that had been occupationally exposed to polynuclear aromatic hydrocarbons (PAC). Since these kinds of PACs have been measured at high levels in air samples taken in these industries, IARC has concluded that these PACs are probably carcinogenic to humans.

Hydrogen sulfide gas (H₂S) is toxic by inhalation. Prolonged breathing of 50-100 ppm H₂S vapors can produce eye and respiratory tract irritation. Higher concentrations (250-600 ppm) for 15-30 minutes can produce headache, dizziness, nervousness, nausea and pulmonary edema or bronchial pneumonia. Concentrations of >1000 ppm will cause immediate unconsciousness and death through respiratory paralysis. Rats and mice exposed to 80 ppm H₂S, 6 hrs/day, 5 days/week for 10 weeks, did not produce any toxicity except for irritation of nasal passages. H₂S did not affect reproduction and development (birth defects or neurotoxicity) in rats exposed to concentrations of 75-80 ppm or 150 ppm H₂S, respectively. Over the years a number of acute cases of H₂S poisonings have been reported. Complete and rapid recovery is the general rule. However, if the exposure was sufficiently intense and sustained causing cerebral hypoxia (lack of oxygen to the brain), neurologic effects such as amnesia, intention tremors or brain damage are possible.

Ecotoxicity effects:

If spilled, hot product and/or the coating action of the oil components could harm plant life. Product can be toxic to fish and aquatic life. The 24 hour TLM of the water soluble fraction of bunker C fuel oil is 3-6 ppm in marine and estuarine crustaceans and fish.

Cleanup Considerations:

This material as supplied and by itself, when discarded or disposed of, is not an EPA RCRA hazardous waste according to federal regulations. This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

49 CFR 172.101:**DOT:**

Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.

Proper shipping name:	Fuel Oil, No. 6
UN/Identification No:	NA 1993
Hazard Class:	3
Packing group:	III
DOT reportable quantity (lbs):	Not applicable.

TDG (Canada):

Proper shipping name:	Fuel Oil, No. 6
UN/Identification No:	NA 1993
Hazard Class:	3
Packing group:	III
Regulated substances:	Not applicable.

Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b):	This product and/or its components are listed on the TSCA Chemical Inventory.
OSHA Hazard Communication Standard:	This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Petroleum Residua	NA
Catalytic Cracked Clarified Oil	NA
Diesel Oil	NA
Sulfur Compounds	NA
5-methylchrysene	NA
Naphthalene	NA
Benzo(a)phenanthrene	NA
Hydrogen Sulfide	hydrogen sulfide

SARA Section 304:

This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Petroleum Residua	NA
Catalytic Cracked Clarified Oil	NA
Diesel Oil	NA
Sulfur Compounds	NA
5-methylchrysene	NA
Naphthalene	= 0.454 kg final RQ = 1 lb final RQ = 100 lb final RQ = 45.4 kg final RQ
Benzo(a)phenanthrene	= 0.454 kg final RQ = 0.454 kg statutory RQ = 1 lb final RQ = 1 lb statutory RQ = 100 lb final RQ = 45.4 kg final RQ
Hydrogen Sulfide	= 100 lb final RQ = 45.4 kg final RQ

SARA Section 311/312:

The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313:

This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name	CERCLA/SARA 313 Emission reporting:
Petroleum Residua	None
Catalytic Cracked Clarified Oil	None
Diesel Oil	None
Sulfur Compounds	None
5-methylchrysene	= 100 lb Reporting Threshold Chemical Category N590, PBT Chemicals = 100 lb Reporting Threshold Listed under "Polycyclic aromatic compounds", Chemical Category N590, PBT Chemicals
Naphthalene	= 0.1 % de minimis concentration
Benzo(a)phenanthrene	= 100 lb Reporting Threshold Chemical Category N590, PBT Chemicals = 100 lb Reporting Threshold Listed under "Polycyclic aromatic compounds", Chemical Category N590, PBT Chemicals
Hydrogen Sulfide	None

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

Petroleum Residua

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.

Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Catalytic Cracked Clarified Oil	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To-Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Diesel Oil	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	[present]
Massachusetts Right-To-Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Flammable
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Sulfur Compounds	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.

Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
5-methylchrysene	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	carcinogen; initial date 4/1/88
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	carcinogen; extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	[present]
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	SN 3758 (Polycyclic aromatic compounds category); Category Code N590; report 500 lbs. in combination of any listed chemicals
	SN 3758; Category Code N590
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Naphthalene	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Listed
New Jersey Right-To-Know:	Listed
Pennsylvania Right-To-Know:	Listed
Massachusetts Right-To Know:	Listed
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Listed
Illinois - Toxic Air Contaminants	Listed

New York - Reporting of Releases Part 597 -
List of Hazardous Substances:

Benzo(a)phenanthrene

Louisiana Right-To-Know:
California Proposition 65:
New Jersey Right-To-Know:
Pennsylvania Right-To-Know:

Massachusetts Right-To Know:
Florida substance List:
Rhode Island Right-To-Know:
Michigan critical materials register list:
Massachusetts Extraordinarily Hazardous Substances:

California - Regulated Carcinogens:
Pennsylvania RTK - Special Hazardous Substances:
New Jersey - Special Hazardous Substances:
New Jersey - Environmental Hazardous Substances List:

Illinois - Toxic Air Contaminants
New York - Reporting of Releases Part 597 -
List of Hazardous Substances:

Hydrogen Sulfide

Louisiana Right-To-Know:
California Proposition 65:
New Jersey Right-To-Know:
Pennsylvania Right-To-Know:
Massachusetts Right-To Know:
Florida substance List:
Rhode Island Right-To-Know:
Michigan critical materials register list:
Massachusetts Extraordinarily Hazardous Substances:
California - Regulated Carcinogens:
Pennsylvania RTK - Special Hazardous Substances:
New Jersey - Special Hazardous Substances:
New Jersey - Environmental Hazardous Substances List:
Illinois - Toxic Air Contaminants
New York - Reporting of Releases Part 597 -
List of Hazardous Substances:

Listed

Not Listed
carcinogen; Initial date 1/1/90
sn 0441
environmental hazard
special hazardous substance
Carcinogen; Extraordinarily hazardous
Not Listed.
Toxic
Not Listed.
carcinogen; extraordinarily hazardous

Not Listed
[present]

carcinogen
SN 3758 (Polycyclic aromatic compounds category);
Category Code N590; report 500 lbs. In combination of any
listed chemicals
SN 3758; Category Code N590
Present
= 1 lb Land/Water RQ
= 100 lbs Air RQ

Not Listed
Not Listed
sn 1017
environmental hazard
Extraordinarily hazardous
Not Listed.
Toxic, Flammable
Not Listed.
extraordinarily hazardous

Not Listed
Not Listed

flammable - fourth degree
SN 1017

Not Listed
= 100 lbs Air RQ
= 100 lbs Land/Water RQ

Canadian Regulatory Information:

Canada DSL/NDL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Diesel Oil	B3; D2B	
5-methylchrysene		1% (English Item 1032, French Item 1124)
Naphthalene	B4; D2A	1 %
Benzo(a)phenanthrene	D2A Uncontrolled product according to WHMIS classification criteria.	0.1% (English Item 405, French Item 562) 0.1% (English Item 411, French Item 1721)
Hydrogen Sulfide	A; B1; D1A; D2B	1% (English Item 851, French Item 1550)

Additional Information:

The pronounced and easily-recognized rotten egg odor of hydrogen sulfide gas (H₂S) can be detected at concentrations as low as 0.003-0.13 ppm. Since higher H₂S concentrations (100-200 ppm) cause olfactory fatigue and other hydrocarbon odors can "mask" H₂S, the sense of smell cannot be used as a reliable indicator of H₂S exposure.

Prepared by:

Craig M. Parker Manager, Toxicology and Product Safety

The information and recommendations contained herein are based upon tests believed to be reliable. However, Marathon Petroleum Company LLC (MPC) does not guarantee their accuracy or completeness nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage maybe required. MPC assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

End of Safety Data Sheet

MATERIAL SAFETY DATA SHEET

#400 Oil

(Product Name)

Spec. used
oil

Page 1

SECTION I - Manufacturer Information

Name	EDWARDS OIL SERVICE, INC.	Emergency Telephone Number	313-841-2265
Address	530 South Rouge	Information Telephone Number	313-841-2265
	Detroit, Michigan 48217	Date Prepared	January 31, 1985
		Signature of Preparer (optional)	

SECTION II - Hazardous Ingredients/Identity Information

Hazardous Components	CAS No.	TLV	PEL	Other Limits	%
Mineral Oil	8012-95-1	5 mg/M3*	5 mg/M3*	NA	>99

*Mineral oil mist, as sampled by method that does not collect vapor

SECTION III - Physical/Chemical Characteristics

Boiling Point	NA	Specific Gravity (H2O = 1)	0.8772
Vapor Pressure (mm Hg)	NA	Melting Point	NA
Vapor Density (AIR = 1)	NA	Evaporation Rate (Butyl Acetate = 1)	NA

Solubility in Water
Poor

Appearance and Odor

Brown with unobjectionable petroleum odor

SECTION IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
325°F (COC)		0.6%	7.0%

Extinguishing Media

Dry chemical, foam, or carbon dioxide

Special Fire Fighting Procedures

Self-contained breathing apparatus may be required.

Unusual Fire and Explosion Hazards

NA

SECTION V - Reactivity Data

Stability	Unstable	Conditions to Avoid
	Stable	Heat and flame
	X	

Incompatibility (Materials to Avoid)

Strong oxidizers

Hazardous Decomposition or Byproducts

Carbon monoxide and other petroleum decomposition products

Hazardous Polymerization	May Occur	Conditions to Avoid
	Will Not Occur	NA
	X	

NA = No applicable information was found.

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date
Signed *[Signature]*

MATERIAL SAFETY DATA SHEET

#400 011
(Product Name)

Page 2

SECTION VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Yes	NA	Yes

Health Hazards (Acute and Chronic)

Acute: Ingestion may cause narcosis.

Chronic: Dermatitis may occur from repeated and/or long-term skin contact. Peripheral nervous system effects (e.g., numbness) may occur from repeated and/or long-term inhalation of oil mist at or above the PEL.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	Yes	No	No

The National Toxicology Program (NTP) has indicated that there is sufficient evidence that some mineral oils are carcinogenic both in humans and in animals and that this effect may be due to the presence of polycyclic aromatic hydrocarbons (PAHs) in these materials.

Chemical analysis of this product did not show any carcinogenic PAHs present.

The International Agency for Research on Cancer (IARC) concluded that the data are inadequate to evaluate the carcinogenicity to experimental animals of used formulated products [class 7.2] as a class, since the possible carcinogenic activity of individual products is dependent upon the quality of the base oils used, the nature and concentration of additives and contaminants, and the conditions of use.

Signs and Symptoms of Exposure

Dizziness, drowsiness, narcosis, dermatitis, reddening of the eyes, pneumonitis, exacerbation of symptoms for people with impaired pulmonary function

Medical Conditions

Generally Aggravated by Exposure

Impaired pulmonary function, especially those with obstructive airway diseases

Emergency and First Aid Procedures

Remove contaminated clothing. Flush affected areas with plenty of water. IF SWALLOWED, DO NOT INDUCE VOMITTING. Seek medical attention immediately.

SECTION VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled

Eliminate all ignition sources. Contain with earthen dike or petroleum-absorbent material. Remove with grounded suction pump to a salvage container. Remove all absorbent and contaminated materials.

Waste Disposal Method

Per federal, state and local regulations

Precautions to Be Taken in Handling and Storage

Keep stored away from all ignition sources (e.g., heat or flames). Store in safety containers.

Other Precautions

NA

NA = No applicable information was found.

Examined by the U.S. Coast Guard
Captain of the Port Detroit

Date

Signed

POZ

MATERIAL SAFETY DATA SHEET

#400 Oil
(Product Name)

Page 3

SECTION VIII - Control Measures

Respiratory Protection (Specify Type)

Organic vapor cartridge with dust, fume, mist, prefilter
(approved by NIOSH/MSHA) when at or above the PEL

Ventilation	Local Exhaust	Special
	To control mist or spray	NA
	Mechanical (General)	Other
	For confined spaces only	NA

Protective Gloves

Neoprene or equivalent chemical-resistant glove

Eye Protection

Chemical splash goggles or face shield

Other Protective Clothing or Equipment

PVC or equivalent chemical-resistant clothing, if body contact is likely

Work/Hygienic Practices

Keep body contact to a minimum.

NA = No applicable information was found.

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date _____
Signed P. J. J.

TOTAL P.09

3.3 PAST SPILL EVENTS

SPILL HISTORY

01/26/79

Incident - On January 26, 1979, at 1610 hours, droplets of oil were observed surfacing in the St. Clair River on the east side of the Barge, Cortland. A visible oil sheen was on the river. Approximately one quart of No. 2 oil was lost. All regulatory agencies were contacted.

A terminal storage tank was not involved with leak.

Immediate Action Taken - Marine Pollution Control, on site, contained the oil with towel swabs.

Corrective Action Taken - Coast Guard reported they would inspect the barge.

10/08/79

Incident - On October 8, 1979, at 1950 hours, the barge unloading pump tripped. Oil flowed back from metering tank into barge and overflowed from the hold vents. Approximately 84 gallons of fuel were lost. All regulatory agencies were contacted. Oil wasn't discharged from the tank but capacity was 3.2 million gallons.

Immediate Action Taken - Hanna used "oil day" to stop overflow from deck. Two slick booms were installed to control oil in the river.

Corrective Action Taken - Hanna accepted full responsibility for the incident.

09/19/80

Incident - On September 19, 1980, the trestle air vent valve was open when the operator flooded trestle in preparation for unloading oil barge. Approximately 42 gallons of #6 residual oil spilled on the ground under land end of trestle. Five to ten gallons of oil seeped through earth and entered river. The oil did not leak from a tank but capacity could have been 17 million gallons.

Immediate Action Taken - Two oil booms were placed in the river to control spill. Fibre pearl oil absorbent was dispersed. Marine Pollution Control Company handled clean up.

06/03/82

Incident - On June 3, 1982, a cracked nipple on an instrument source valve was found cracked which allowed approximately 5 barrels of No. 6 oil to reach Bunce Creek. Associated tank is unknown as of 2/2001 to supply capacity.

Immediate Action Taken - The point of discharge was isolated. The oil that reaches Bunce Creek was contained at the weir at Gratiot Avenue, and on debris in the creek between the discharge and the weir. Fibre Pearl was strategically placed in the creek. Marine Pollution Control used a pumper truck to remove the combination of oil, water, Fibre Pearl and debris at the weir and along the creek.

Corrective Action Taken - The cracked nipple was replaced.

3.3 Past Spill Events (cont.)

06/20/96

Incident - The terminal has two drainer tanks that collect, equipment oil drains, rain water and oil from several curbed area surrounding terminal equipment. The removal of water is accomplished by pumping the water with a portable pump into the diked area where it is routed through an oil/water separator before discharging to Bunce Creek via an NPDES outfall. The spill occurred when the water was pumped onto the ground outside of the diked area and the level lower so far that the pump suction pumped oil onto the ground. Approximately 4 gallons of oil was pump onto the ground. Notifications were made to the MDEQ. The oil contaminated soil was collected and put into drums and properly disposed. The tanks have a total capacity is 1000 gallons but oil volume is keep below 1 inch.

Corrective Action Taken: The employees were disciplined for not following proper procedures.

12/12/00

Incident -While operating the pipeline unloading a barge and pumping # 6 oil to Greenwood a valve failed on the transfer pump discharge. Oil sprayed but most of which stayed inside the pump containment area but 15 gallons landed outside the curbed area. The operator discovered the leak while making rounds and immediately shut down the pumps. The operator notified the shift supervisor who then called the QI to assist with response and cleanup. Marine Pollution Control was called and responded to recover the oil. Notifications were made to all agencies. Due to cold temperatures and snow cover the oil did not flow so the spill was very localized. The tank capacity was 17 million gallons.

Corrective Action Taken - The cracked valve was repaired. All recovered oil was transported to Greenwood E.C. where it was placed into the used oil tank.

12/16/00

While pumping #6 oil to Greenwood from the storage tank and unloading a barge a lubrication nipple on a manual recirculation valve on the pipeline header failed. The leak was discovered at 23:10 by the operator while making his rounds. The pipeline pump was shutdown at 23:15. Approximately 15 gallons leaked inside the curbed pump containment and less than 10 gallons leaked outside the curbed area. Due to the cold temperatures and snow the #6 oil did not migrate. The primary QI was contacted at 00:29, reviewed situation and called our OSRO at 01:07. All spill notifications were made and the oil cleaned up then disposed. The tank capacity is 17 million gallons but there was only 60,000 gallons in the tank. The nipple was repaired and the pipeline returned to service at 04:20.

3.3 Past Spill Events (cont.)

2/1/01

A missing drain header pipe plug was loose and allowed 15 gallons of oil to spill onto the ground. This oil entered the drain header via equipment containment drain. The oil leaked into this area during the spill on 12/16/00. The operator discovered the leak when he went to operate the oil water separator for the drain header and berm drains. The oil and soil was cleaned up and disposed. The corrective action was to tighten the drain plug clean out. No tank was associated with this spill.

3/14/2002

On March 14, 2002, Number 6 fuel oil was being transferred from the Marysville terminal in Marysville, MI to the Greenwood Energy Center in Avoca, Michigan through the pipeline. Shortly after 10 am, operators noticed a slight weeping of oil from a relief valve. The decision was made to stop pumping operations to address the weeping valve. During shut-down at about 10:30 am, the seal on the strainer relief valve failed. The volume of oil lost was determined upon visual inspection by the shift supervisor and the site environmental compliance specialist. Most of the approximate 40 gallons of oil was contained in the cement berm. As the failure caused a spray of oil, an estimated 10' x 5' area received a light coating of oil. Facility operators responded with absorbent pads, a site contractor, Burch, initiated further cleanup at 8 am the following morning.

Clean-up continued from Friday, March 15 and is expected to be completed around March 22. The contaminated soil outside the berm and the now thick, cooled oil interlaced in the stoned covered containment were removed and placed into roll-off boxes. Approximately, four, 20-cubic yard roll-off boxes were filled. The non-RCRA hazardous material was disposed at the Smith Creek landfill, solid waste facility. All the required agency notifications were made. See spill notification report MVPP2002_0314 for more detail.

3.3 Past Spill Events (cont.)

3/2/2004

An oil sheen was discovered around the discharge water from the terminal berm drains. The water flows through an oil water separator then discharges into Bunce Creek. Water samples were taken after the equipment was put into service and again after the sheen was discovered. The results of all samples from this outfall were below the detection level. The operator saw an oil sheen upstream of our outfall at 12:30 and no sheen at our outfall. At 13:20 a sheen from our outfall and some droplets of oil were observed. The discharge was stopped and equipment inspected without finding a problem. The outfall was inspected after restarting the discharge and there wasn't any sheen from the water from our discharge. Samples were taken on the oil in the oil/water separator, the ground around out discharge pipe and from the water downstream at the oil-skimming weir by Gratiot Blvd. At this skimming wall there was an estimated 5-10 gallons of oil. A contractor was called in, they begin recovery of the oil on the water at 5:30 PM. The oil release was reported to the MDEQ on 3/2 and we stated the source of all the oil was unknown at the skimming wall it did not appear to be our oil but we were responding as if it was.

3/3 The analytical results confirmed the oil at the skimming wall did not match oil in our separator or oil samples from leaves around our discharge pipe. The lab result of the oil sample removed from Bunce Creek was non-detect for PCB's and total halogens were 200 ppm.

There was some oil-impacted vegetation along the creek bank in a few of locations. We estimates approximately 3-5 gallons of oil was removed.

The water and oil in the vacuum truck was put into Marysville Power Plant oily waste basin. The oil will be removed from this basin with absorbent boom. There were a lot of bottles, sticks, Styrofoam packing material, and some ice collected at the skimming wall. These materials were collected in trash bags, clay absorbent added then disposed of in our trash hopper. All the required notifications were made. See Spill report notification MRYPP2004-3-02 for more detail.

8/10/2005

At 15:00 hours a security guard noticed a brown substance sprayed around the trestle walkway to the wharf. Operations was notified, they responded and discovered that an oil release had occurred from the land to wharf sump transfer piping. They estimated the quantity at 1 quart total released from the pipe. They isolated the pipe. The release came from a flange between the check valve and isolation valve. The gasket was pushed out of the flange. The wharf sump was pumped down during the evening of 8/9 and then de-energized. Oil was sprayed from the flange and pushed piping insulation off. There were drops of oil sprayed onto piping and the walkway of the trestle. It is assumed that some small amount was released onto the river. No sheen was observed in the river. The release happened after 10:00 because operations had been on the wharf at that time and walked by this area. The piping and grating in this area was cleaned up. Some vegetation removed and disposed.

3.3 Past Spill Events (cont.)

The rags, pads and vegetation were collected in trash bags then disposed of in our trash hopper. All the required notifications were made. For more detail see Spill Report notification form MRYPP2005-08-10.

Marysville Terminal spill reports are filed electronically on the Marysville Power Plant Server.

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4 - DISCHARGE SCENARIOS

The discharge volumes for the Marysville Terminal Facility are as follows:

	<u>Amount</u>	<u>Type</u>
Average Most Probable	50 barrels, 2100 gal	Fuel oil
Maximum Most Probable	1,200 barrels, 50400 gal	Fuel oil
Worst Case Discharge	445,238 barrels, 18.7 M gal	Fuel oil

4.1 - WORST CASE DISCHARGE SCENARIO

Substance: Oil (No.2, No.6, & specification used oil)

Amount: 18,700,000 Gallons (110% of largest single tank within a secondary containment area.)

The Fuel Oil Tank is located approximately 100' from Bunce Creek, a local drainage creek that flows southeast along the south boundary of the Marysville Terminal Facility (See Map). A trailer park is located approximately 75' west of the tank. From the Terminal, Bunce Creek flows southeast approximately 1/2 mile before entering the St. Clair River on the east side of the Marysville Power Plant.

The tank is located inside a 10' high clay earthen berm with a 2:1 slope ratio. The bermed area has capacity for approximately 18,700,000 gallons of oil (110% of tank capacity).

A catastrophic failure of the tank, resulting in immediate loss of the entire contents, would normally be contained inside the containment berm area. The worst case scenario will be defined as the simultaneous failure of the tank and containment berm. The severity of the incident would likely be determined by the location of the berm failure and the resultant direction the oil would initially take.

Failure of the containment berm on the south side (toward Bunce Creek) would result oil loss to the bermed area surrounding the smaller fuel oil and metering fuel oil tanks. This would increase the containment area by 1.5 to 3.5 million gallons and would not result in a loss of oil outside a containment area. A second simultaneous berm failure would result in an oil spill toward Bunce Creek. Simultaneous failures of the storage tank and two separate containment berms are highly unlikely.

4.1 - WORST CASE DISCHARGE SCENARIO (CONT.)

A failure of the containment berm to the west would result in oil loss toward the maintenance road surrounding the berms. The average grade elevation at the bottom of the tank and bermed containment area is 595' above sea level. The road that surrounds the bermed areas has an average elevation of 600' and may result in some additional containment. Oil that would flow over the road would most likely flow toward and into the neighboring trailer park. It is also possible that, once over the road, oil could flow south and enter Bunce Creek.

Failure of the berm in the east or north directions would result in a somewhat similar scenario. The likelihood of oil entering either the trailer park or Bunce Creek would be reduced in these cases, however.

The unloading and pumping processes at the Terminal Facility were also evaluated. Although the possibility of oil loss exists due to equipment failures, the likelihood of releasing the oil amount discussed above is highly unlikely. Therefore, unloading operations do not present a worst case probability.

The terminal facility has contracted with Marine Pollution Control as our OSRO. They have the capability to supply the equipment and personnel to respond to our worst case, maximum most probable, and average most probable discharge scenarios. For a list of MPC equipment see section 2.3.3.10. The recovered material could be placed into terminal tanks, pumped to Greenwood via the pipeline, transported to Greenwood via trucks, transported to St. Clair Power Plant.

4.2 - MEDIUM CASE DISCHARGE SCENARIO

Substance: Oil (No.2, No.6 & specification used oil)

Amount: 96,000 gallons, The maximum amount allowed per 112.20(h)(5)(I)(B) because 10% of the largest tank would be 1,700,000 gallons.

A leak at a flange between the pumps and the isolation valve of the main storage tank (A003) would not be noticed for several minutes. The operator makes rounds on the operating equipment several times per shift so we will assume the maximum time would be 180 minutes. The operator would use his radio to notify the control room to shut down the transfer operation due to a leak this should be accomplished within 2 minutes. The tank isolation valve would be closed with the automatic controls or manually this should take no more than 5 minutes. The next valve upstream of the leak would then be closed to isolate the leaking flange from the facility which should also be accomplished within 5 minutes. The oil would be contained inside the containment berm that has a capacity of 18,700,000 gallons.

4.2 - MEDIUM CASE DISCHARGE SCENARIO (CONT.)

During this time the control room operator would also notify the Shift Supervisor who would initiate cleanup activities listed in Section 2.3 of this manual. Our primary emergency spill response organization (OSRO) would be notified to respond to assist with cleanup activities. If there was any chance that the oil would reach Bunce Creek or be a hazard to the community, the Shift Supervisor would begin the notification procedure listed in Section 2.1 of this manual.

The reclaimed oil would probably be transported to Greenwood. Waste will be properly disposed per Section 2.5 of this manual.

4.3 - SMALL CASE DISCHARGE SCENARIO

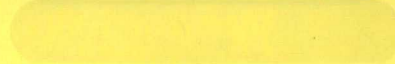
Substance: Oil (No.2, No.6, & specification used oil)

Amount: 100 gallons

While unloading a barge loaded with No. 2 fuel oil the unloading hose ruptured. The wharf operator immediately notified the barge personnel and instructed them to shut down the unloading pump this should take less than 4 minutes. The operator at the wharf then notified the Shift Supervisor who initiated the response activities listed in Section 2.3 of this manual. The supervisor would immediately request response personnel to install additional containment and absorbent booms and deploy oil absorbent material while he/she was calling our emergency spill response organization (OSRO) listed in 2.0.3a.1. The Shift Supervisor would then begin the notification procedure listed in Section 2.1.

The oil that leaked from the ruptured hose was sprayed on the wharf, barge and into the water. The drain sump on the wharf collected approximately 70 gallons of oil and transferred it to the facility, the sump has a capacity of 170 gallons. Approximately 20 gallons of oil was contained on the wharf and barge with oil absorbent materials. The remaining 10 gallons was spilled into the St. Clair River. The 10 gallons of oil that was in the water was absorbed by absorbent material and absorbent booms that were deployed after the spill. When our OSRO arrived, they removed the oil and oil absorbent materials from the water and handled the cleanup activities.

Additional inspections were made downstream to ensure that no oil had gotten past the oil booms, none was found. The waste was properly disposed per Section 2.5 of this manual.





5 - TRAINING AND MEETING LOGS AND SELF INSPECTIONS

5.1.1 - TRAINING PROCEDURES

The Plant Supervisor is responsible for the training of all plant personnel. Operators of the Marysville Terminal Facility have completed a series of operational procedure reviews and tests described on the following page. A list of the MARYSVILLE TERMINAL FACILITY operational procedures is found in this section. In addition, all MARYSVILLE TERMINAL FACILITY Operators have completed an incipient fire fighting training course, HAZWOPER Awareness Level training in accordance with 29 CFR 1910.120, and annual Environmental Training, reviewed the MARYSVILLE TERMINAL FACILITY Pollution Incident Prevention Plan (PIPP or SPCC). An outline of the annual environmental training program is found in section 5.1.3.

Operators not trained in MARYSVILLE TERMINAL FACILITY operations will still have completed all the above training with the exception of the operational procedures outlined on the following pages. Maintenance, Instrument, and technical personnel training will consist of a minimum of the computer based environmental program and HAZWOPER Awareness Level.

The personnel training records will be stored in the Company Personnel Training History System available from the vendor that maintains this information. (Currently Raytheon 2010).

Discharge prevention training is part of the annual computer based environmental training.

Volunteers and/or casual laborers will NOT be used during an oil spill incident. The OSRO will supply personnel to respond to a release. Plant personnel will operate equipment and act in a defensive mode.

The Training records for Spill Management Table Top, QI notification, and Triennial Exercise documentation will be kept on file at Marysville Power Plant.

The terminal OSRO will maintain equipment deployment and inspection records for their equipment since no terminal response equipment is listed in this plan.

The terminal will inspect tank berms as part of operator rounds, but we will also have periodic maximo records of terminal berm inspections on file to document inspections have been performed.

Tank Inspections will be performed as necessary to ensure tank integrity. The terminal will utilize maximo records to record and prompt these tank inspections.

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5.1.2 OPERATIONAL PROCEDURES LIST

Procedure No. Procedure Description

- | | |
|-----|--|
| 1 | Meter Prover Operation |
| 2 | Portable Prover Hook up |
| 3a | Barge Off-Loading - Direct to Residual Oil Storage Tank |
| 3b | Barge Off-Loading - Direct to Metering Tank |
| 3c | Barge On-Loading Operations |
| 4 | Trestle Pipeline Evacuation |
| 5 | Truck Un-Loading Operation for No.2 Oil |
| 6 | Custody Transfer - Meter Ticket |
| 7 | Sampler Operation |
| 8 | Hand Line Gauging - Innage Method |
| 9a | No.2 Oil System Operation |
| 9b | Degelling Operation |
| 10 | Tank Mixer Operation |
| 11 | Main Unit Operation For System Start-Up |
| 12a | Heat Circulation - Residual Oil Storage Tank |
| 12b | Heat Circulation - Metering Tank & 10" Off/On-Loading Loop |
| 13 | Emergency Shutdown Operation |
| 14 | Sump Pump Operation |
| 15 | Hourly OS and 7 A.M. Stock Report |
| 16a | Pig Dispatching Operation for X-3 Launcher (to GWEC) |
| 16b | Pig Dispatching Operation for X-1 |
| 16c | Pig Dispatching Operation for X-2 |
| 17a | Pig Receiving Operation for X-4 Receiver |
| 17b | Pig Receiving Operation for X-1 Receiver |
| 17c | Pig Receiving Operation for X-2 Receiver |
| 18 | Sending and Receiving Meters |
| 19 | Heat Tracing |
| 20a | Transfer Metering Tank to Residual Oil Storage Tank |
| 20b | Transfer Residual Oil Storage Tank to Metering Tank |
| 21 | Fire Protection (Foam System) |
| 22 | Mainline Heat Exchanger |
| 23 | Oil Water Separator System |
| 24 | System Schematics |

5.1.3 COMPUTER BASED ENVIRONMENTAL REVIEW PROGRAM

The computer based Environmental Review Program is part of the training required annually for facility personnel by DTE. Part of that training is the spill prevention, reporting, and hazwopper awareness module.

The module outline does the following:

- Define the purpose of Best Management Practices (BMP) and Pollution Incident Prevention Plan (PIPP).
- Identify the elements of the BMP and PIPP.
- Identify related regulatory legislation.
- Identify the responsibilities of the Power Plant personnel.
- List spill prevention techniques.
- Determine proper reporting and notification procedures.

5.1.4 WHARF OPERATORS

On the following page is the latest list of Operators that can be placed in charge of the wharf. It is updated as needed

Marysville Power Plant
Power Generation

Date: January 23, 2009

To: Wharf Operating Manual
Marysville Terminal Facility

From: James Masterson
Environmental Compliance Specialist

Subject: Individuals Qualified to be "Person In Charge" of Oil Wharf Facility

1. David Maynard
2. Glenn Taylor
3. David Sanderson
4. Dave Marquis
5. Michael Wesch
6. Bart Stockwell
7. Robert Thibert
8. Nancy Thomas
9. Alan Booth
10. Jamie Shovan
11. Dan Gruben
12. Jennifer Fowler
13. Donald Cleland

Training

Each operator receives 48 hours of actual on the job training before being certified to assume the responsibilities of Wharf Person in Charge (P.I.C.).

While training the operator reviews step by step procedures (JITS) and the Wharf Operating Manual, which are prepared for the Marysville Terminal Facility. Each trainee is also instructed by certified operators on proper communication, emergency oil spill and fire response procedures.

Cc: Terminal OPA Manual (file)
Mike Deegan
Posted in Wharf Control Room
United States Coast Guard
Ed Paquette

5.2 - DRILL PROCEDURES

This section identifies the types of drills mandated by OPA 90 for a facility's Response Plan. Frequencies of each type of drill are also outlined. The purpose of the drill is to determine the Response Plan effectiveness and to test the facility response capabilities. To meet this end, Marysville Terminal has adopted the "PREP" guidelines, which was developed cooperatively by the U.S. Coast Guard, the U.S. Environmental Protection Agency, U.S. Department of Transportation Research and Special Programs Administration, and the U.S. Department of Transportation Minerals Management Services to meet the requirements of the OPA 90 and any rules promulgated under it. The Terminal will follow the prescribed triennial cycle for the drills.

The records for the following drills and exercises will be maintained in the Plant MPAC records keeping system. This system will automatically print out a work order to perform the required drills and exercises then keep the records for more than 5 years. These records will be available for review by any government agency that needs access.

5.2.1 - QI NOTIFICATION DRILL

The purpose of this type of drill is to ensure the facility Qualified Individual (QI) can be reached in a spill. In this drill the QI must be contacted (by any means of communication) during normal business hours. The contact must be documented by the facility. This drill is performed quarterly.

5.2.2 - SPILL MANAGEMENT TEAM TABLETOP EXERCISE

A Tabletop exercise (TTX) is an informal gathering of key members of the facility staff to discuss actions to be taken during an oil or hazardous material spill. It is a verbal walk through. Participants should practice problem-solving and resolve questions of coordination and assignment of responsibilities. The TTX should be a relaxed, non-threatening experience with no time constraints. It is conducted annually, and at least one of the TTX exercises, within the triennial drill cycle, must involve a Worst Case Discharge scenario. All TTX exercises will be documented and evaluated for effectiveness.

5.2.3 - EQUIPMENT DEPLOYMENT DRILLS

Since the Marysville Terminal has contracted a certified OSRO (i.e., Marine Pollution Control, Detroit, MI) for the purpose of spill mitigation and cleanup, it will rely on the annual equipment deployment of the OSRO to fulfill this obligation. The facility has been assured by the OSRO that they will supply documentation of the annual deployment of their equipment.

5.2.4 - UNANNOUNCED TABLE TOP EXERCISES

The Unannounced Team Table Top Exercises must be conducted annually. However, it does not need to be a separate exercise. For instance, if a TTX (as described above) is performed unannounced, then this requirement is considered fulfilled. The documentation for the drill will specify that it was conducted unannounced. Within the triennial cycle, one of the unannounced drills must be for an Equipment Deployment, therefore Marysville Terminal will assure that the OSRO will comply with this requirement.

5.2.5 - TRIENNIAL EXERCISE OF THE ENTIRE RESPONSE PLAN

All components of the Response Plan are to be exercised within the Triennial period. It is not required to exercise the entire Response Plan at once. The facility may exercise individual components or a group of components each year, until all of the components are exercised within the three-year cycle. At least the following components will be exercised and documented:

- Notifications
- Staff mobilization (key facility response team individuals)
- OSRO notification and mobilization
- Discharge control
- Assessment of the discharge
- Containment of the discharge
- Recovery of spilled material
- Protection of economically and environmentally sensitive areas
- Disposal of recovered products
- Communications
- Transportation
- Worse case discharge scenario table top drill
- Documentation

5.2.6 - AREA EXERCISES

Marysville Terminal will participate in Area Exercises when requested to do so by either a government or industry "Area Exercise Leader" as determined by the National Scheduling Coordinating Committee.

5.2.6.1 - QI NOTIFICATION DRILL LOG

QI Notification Drill Log

This information will be kept on the Plant MPAC record keeping system.

Name of person performing drill:

Date (should be conducted at least quarterly):

Drill start time: Time contact made:

Qualified Individual contacted:

Emergency Scenario:

Evaluation (of drill contact): Good Bad poor

Changes to be Implemented if needed:

Time table for Implementation:

5.2.6.2 - SPILL MANAGEMENT TEAM TABLETOP EXERCISE LOG

Spill Management Team Tabletop Exercise Log

This information will be kept on the Plant MPAC record keeping system.

Date (should be conducted at least annually):

Qualified Individual contacted:

Emergency Scenario:

Evaluation (of drill contact):

Changes to be Implemented if needed:

Time table for Implementation:

5.2.7 - MOCK ALERT DRILL LOG

Note: Do not contact the National Response Center for a Mock Alert Drill.
This information will be kept on the Plant MPAC record keeping system.

Date _____ Response Coordinator: _____

Facility Name: Marysville Terminal Facility

Emergency Scenario:

Coast Guard Team Response Time: _____

Contractor Team Response Time (OSRO): _____

Facility Team Response Times: _____

Changes to be Implemented:

Notes:

6.0 - PLAN REVIEW AND UPDATE PROCEDURES

The facility response plan must be reviewed annually by the facility owner or operator. The review shall incorporate any changes in the listings of economically important or environmentally sensitive areas identified in the ACP in effect 6 months prior to the plan review. This review must occur within one (1) month of the anniversary of COTP approval of the plan. The facility owner or operator will submit any amendments of the response plan to the COTP for information or approval. If no changes are required, the facility owner or operator shall send a letter to the COTP indicating that the plan remains valid with no changes. A copy of the letter must be included in the front of the response plan and indicated in the record of changes page.

Any required changes must be entered in the plan and noted on the record of changes page. Revisions or amendments to either a previously submitted or approved response plan must be submitted to the COTP by the facility owner or operator for inclusion in the existing plan or for approval, whichever is appropriate, whenever there is; 1) a change in the facility's configuration that significantly affects the information included in the response plan; 2) A change in the type of oil handled, stored, or transported that affects the required response resources; 3) A change in the name(s) and/or capabilities of the oil spill removal organization (OSRO) required in 154.1045; 4) A change in the facility's emergency response procedures; 5) A change in the facility's operating area that includes ports or geographic areas not covered by the previously approved plan; 6) Any other changes that significantly affect the implementation of the plan; or 7) Five years from the date of the COTP approval.

The COTP may require a facility owner or operator to revise the response plan at any time as a result of a compliance inspection if the COTP determines that the response plan does not meet the requirements of this subpart or as a result of inadequacies noted during an actual pollution incident at the facility.

Except as required in paragraph 2 above, amendments to Personnel and telephone number lists included in the response plan do not require COTP approval. The COTP and all other holders of the response plan shall be advised of the revisions and provided a copy of the revisions as they occur.

7.0 APPENDICES

7.1 - FACILITY INFORMATION

The facility start-up date was 0100 hours, on January 4, 1979. The terminal has been utilized periodically since that date, when the need to transfer oil to the Greenwood Energy Center dictates. The terminal had been idle from 1994 until late 1997. From December 1997 through December 1998 approximately 550,000 barrels of oil were off loaded and transferred to Greenwood. It is not normal operating practice to store large quantities of oil at the terminal facility but storage is an option if desired. There has not been nor is a date set for future expansion of the facility. The Standard Industrial Classification code for this site is 4911.

7.1.1 - PHYSICAL DESCRIPTION

The Marysville Terminal facility is an oil receiving facility handling fuel oil received via tanker truck unloading stations and river barge shipments. This facility consists of a U.S. Customs oil metering system, a metering oil storage tank, a No. 2 grade oil storage tank, a fuel oil (No.2 - No.6 grade) storage tank, oil heating and recirculating equipment, and oil pumping equipment.

The Marysville Terminal facility unloading wharf is located on the St. Clair River at the Detroit Edison Marysville Power Plant site at 301 N. Gratiot Avenue in Marysville, Michigan. Oil is unloaded at the wharf and transported via a pipeline to the Marysville Terminal storage and handling facility located on the west side of Gratiot Avenue directly north of the Marysville Power Plant. Oil receipts are metered in accordance with U.S. Customs Department Regulations. Oil can be stored until it is transported inland via the pipeline to the Detroit Edison Greenwood Energy Center.

The wharf itself is 490 ft. in length and 10 ft. in width. A twelve inch, 100 ft. long trestle pipeline from wharf to shore serves as the single conduit for loading or unloading barges. The trestle pipeline is evacuated of all oil after each operation to reduce the possibility of oil spills to the St. Clair River. The wharf also includes a drain sump and pump for pumping collected water and oil from the hose connection drip pan, and drain valves back into the on shore pipeline. This facility will not unload or receive any vessel slop (unless shipment product) from a vessel leaving a U.S. port. If the shipment is from a foreign port, and we are required to accept, the vessel slop will be pumped into drums for testing and disposal.

The wharf itself is designed to unload barges with capacities up to 50,000 barrels (2,100,000 gallons) at a maximum rate of 4,900 G.P.M. Each barge receipt is metered by a positive displacement meter and will be initially contained in a 3,200,000 gallon metering tank before being transferred to the main storage tank. Although two barges can be moored at the wharf, unloading can occur from one barge at a time.

7.1.1 - PHYSICAL DESCRIPTION (cont.)

The wharf is manned on an "as-needed" basis. Trained wharf personnel are present for the duration of all transfer operations. The "person in charge" on the wharf will be responsible for the unloading operation, monitoring control and alarm functions, and general wharf maintenance. In addition, the "person in charge" must determine that the conditions of the "Coast Guard Declaration of Inspection" form are met and that the form has been completed prior to any transfer operations.

The wharf and trestle pipeline is connected to the balance of the Marysville Terminal Facility via two 10" underground pipelines. Storage of No. 2 grade oil is provided by one 675,000 gallon "Cutter Stock" tank. Storage of fuel oil (No. 2 - No. 6 grade) is provided by one 17,000,000 tank. An additional 3,200,000 gallon tank is provided for metering of all oil receipts. The three tanks are surrounded by a clay lined earthen berm. Each of the three tanks is further segregated by a secondary clay lined berm. The berms are designed to contain 110% of the largest tank plus 25% of the remaining tanks at the site. Each of the three bermed areas has its own valved drain line to provide rainwater runoff drainage to a common drainage system. These drains flow to an oil water separator for treatment before discharge to Bunce Creek. Discharge is manually operated under the direct control of an operator. Discharges are made during daylight hours only after the operator determines that no oil exists in the runoff.

The fire protection system has fire detection, audio and visual alarm, and foam/water dispensing capabilities to all oil storage tanks and bermed areas. Water hydrants also are available at the wharf facility.

The Marysville Terminal Facility is fenced and patrolled regularly by plant personnel under the direction of the Manager-North Area Plants. Unusual situations, such as strikes, vandalism, etc., will be resolved by the Manager-North Area Plants, or delegate. The operation of any valve or switch is performed under the direction of the Shift Supervisor. All valves and switches that are inoperative or require special clearance before operation are properly tagged and identified in accordance with Power Plant Order No. 77.

All oil tanks are provided with remote or local level indication. All of these levels are checked at least once each shift by Plant Operators when the terminal is accepting deliveries, storing oil, or pumping oil to Greenwood. The fuel oil tanks are also provided with high level alarms. If the level in a tank increases one foot above the high alarm point, all inlet valves to the tank will automatically close. All fuel oil supplies are metered and operators record deliveries and storage daily for inventory control. The sudden drop in level or increased use of oil by any piece of equipment is investigated as a possible source of oil loss.

There are no wells located on the site so no wellhead protection is required.

There are no surface impoundments at the terminal facility.

7.1.2 - SIZE AND TYPE OF VESSELS

The wharf facility is designed to unload barges with capacities up to 50,000 barrels (2,100,000 gallons) at a maximum rate of 4,900 G.P.M. Each barge receipt is metered by a positive displacement meter and will be initially contained in a 3,200,000 gallon metering tank before being transferred to the main storage tank. Although two barges can be moored at the wharf, unloading can occur from only one barge at a time.

7.1.3 - FIRST VALVE INSIDE SECONDARY CONTAINMENT - MOV 62

The basic control system for barge unloading is manual. Motorized valves can be operated locally or remotely. Start-stop (open-close) remote control of pumps and valves is by push-button stations on the mimic panel in the Terminal Control Center. All emergency shutdown devices on the wharf are manually operated. Motor operated valve No. 62 is located on the wharf and can be closed remotely from the wharf control panel or manually using the hand wheel on the valve.

The first valve inside the containment for the wharf is MOV-62.

The first valve inside the containment for each tank is listed below.

<u>Tank No./Description</u>	<u>First valve</u>
A001 Cutter stock	MOV-15
A002 Metering	MOV-8, MOV-9, MOV-10, GT-10
A003 Main Storage	MOV-19, MOV-20, GT-24

7.1.4 MATERIAL INFORMATION

1. Storage Tank Information
2. Plot Plans, Site Maps
3. No. 2 Fuel Oil MSDS
4. Specification Used Oil MSDS
5. No. 6 Fuel Oil MSDS

7.1.4.1 - STORAGE TANK INFORMATION

Tank No./Description	Substance	Amount Stored	Tank Type/Year	Maximum Capacity
A001 Cutter Stock	Oil	0	Steel - 1979	675,000 Gallons
A002 Metering	Oil	0	Steel - 1979	3,200,000 Gallons
A003 Main Storage	Oil	0	Steel - 1979	17,000,000 Gallons

The Marysville Terminal Facility can provide storage for oil. The oil is then pumped to the Greenwood Energy Center via a pipeline. No.2 or specification used oil is used to flush and as line pack in the pipeline once all the oil has been pumped to Greenwood.

No CERCLA defined, hazardous substances are stored in the oil tanks at the Marysville Terminal Facility.

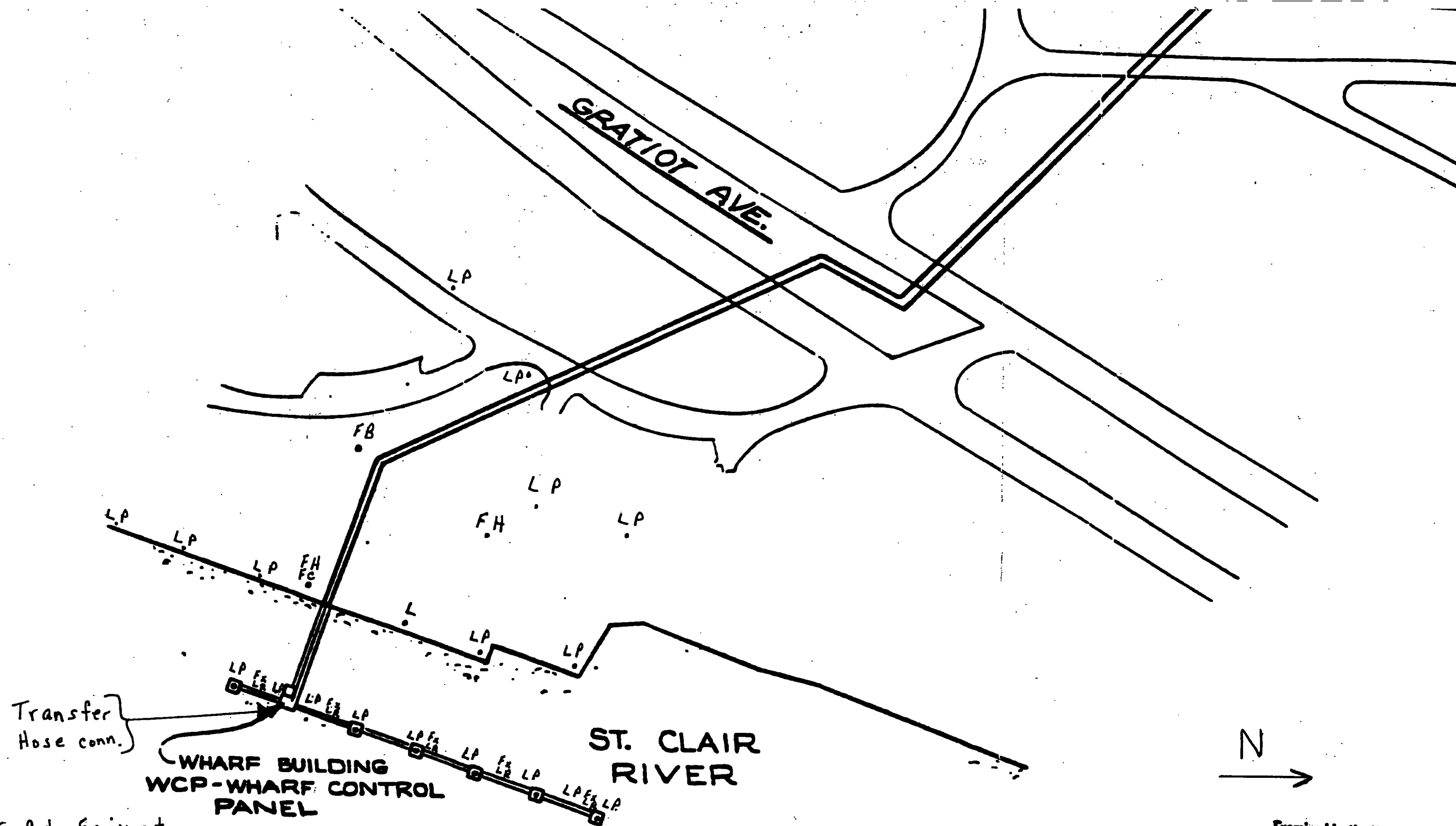
7.1.4.2 PLOT PLANS, PIPING DIAGRAMS & SITE MAPS

Plot plans, piping diagrams and site maps are found on the following pages.

There is not a drum storage area associated with the Wharf or Terminal Facility, so it is not addressed on the site diagrams.

The communication equipment is used daily by Plant Personnel and is stored in several locations around the plant; therefore no location is shown on site diagrams. All radios used by terminal facility personnel are intrinsically safe.

Response personnel and equipment transportation ingress and egress will be via Gratiot/ M29 to the site roads shown on site diagram.



Safety Equipment
inside wharf building

- 5 - Life Vest
- 1 - Fire extinguisher
- 1 - stretcher
- 1 - Emergency Eye Wash
- 1 - Emergency Lighting



MOD RING ON
This side only

Key

- LP - Light Poles
- Fx - Fire Extinguisher
- LR - Life Ring
- L - Life Rope
- FH - Fire Hydrant
- F.C. - Fire water Cannon
- F.S. - Fire Shed, Hydrant + Hoses

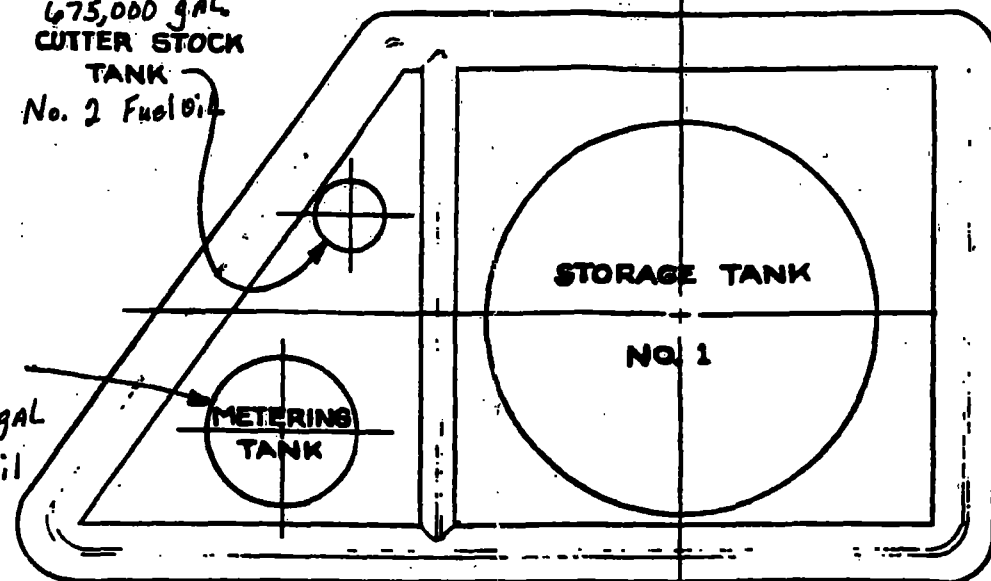
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Captain of the Port Detroit
Date _____
Signed 262

Note: It is not normal operating practice to store any oil at the terminal, except during off-loading periods.

A 001
675,000 gal
CUTTER STOCK
TANK
No. 2 Fuel oil

A 002
3,200,000 gal
Residual oil
4-6

A 003
17,000,000 gal
Residual oil
4-6



METERING STATION
SCP - SOUTH CONTROL PANEL
NCP - NORTH CONTROL PANEL

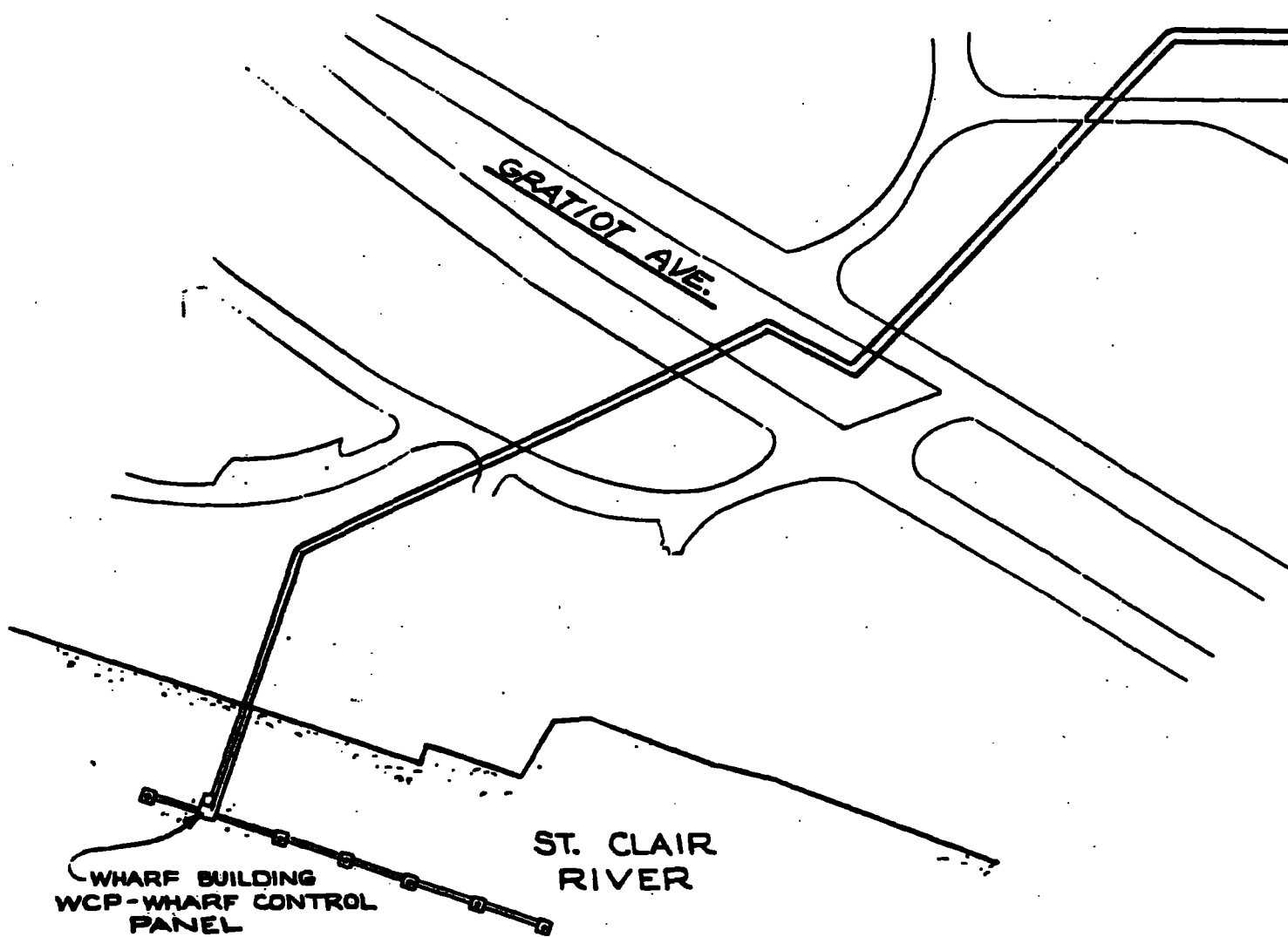
FOAM HOUSE
CONTROL BUILDING

PANELS

- CMP - CUSTOM METERING PANEL
- MCP - MECHANICAL CONTROL PANEL
- PRP - PROCESS RECORDER PANEL
- ECP - ELECTRICAL CONTROL PANEL
- LDP - LEAK DETECTION PANEL
- FPP - FIRE PROTECTION PANEL

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Captain of the Port Detroit
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Signed D. A. Z.

MARYSVILLE TERMINAL FACILITIES
CONTROL PANELS - LOCATION
CAI SKETCH FSD-A





LEGEND

MOTORIZED VALVE

GATE VALVE

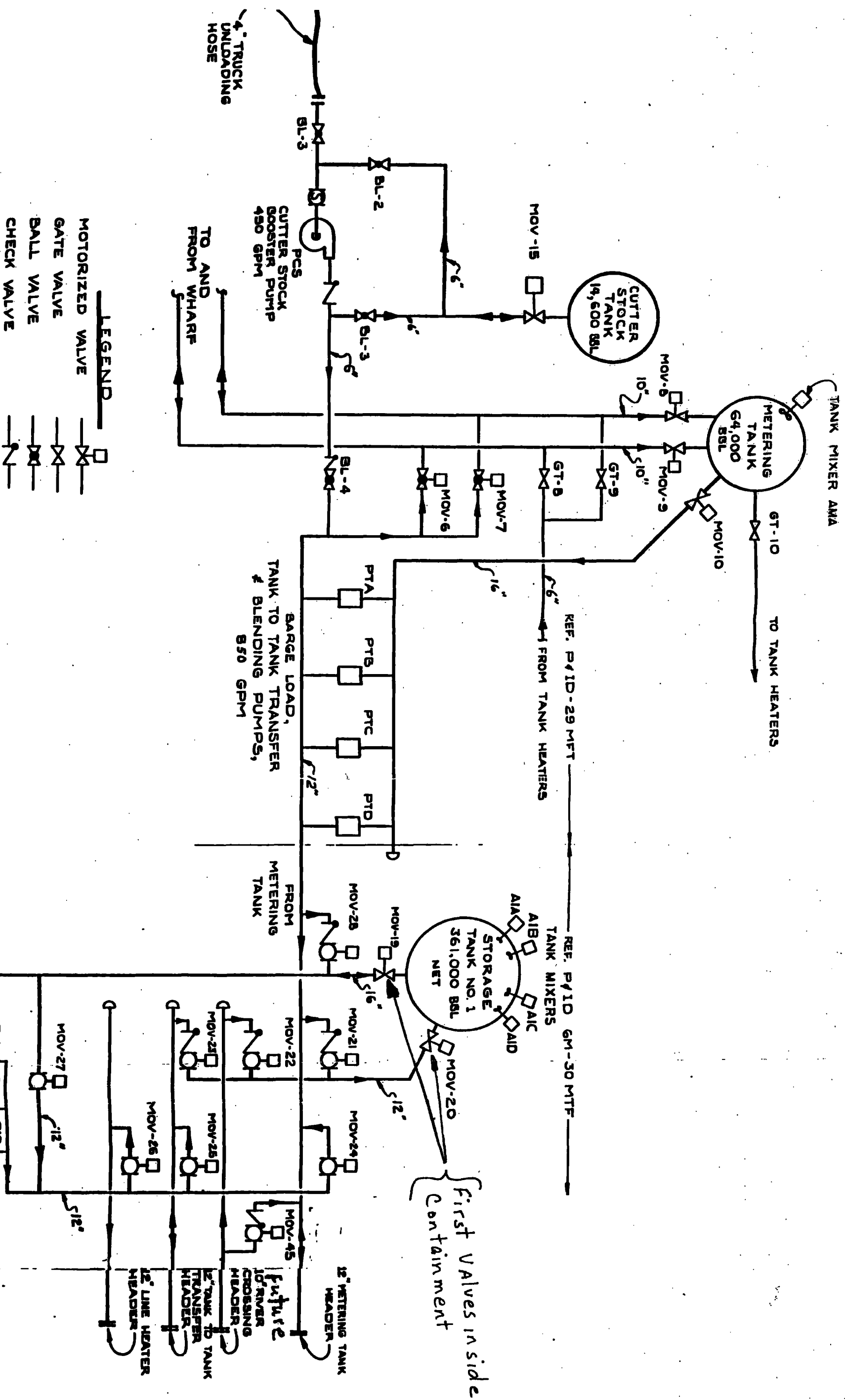
BALL VALVE

CHECK VALVE

SOLENOID VALVE

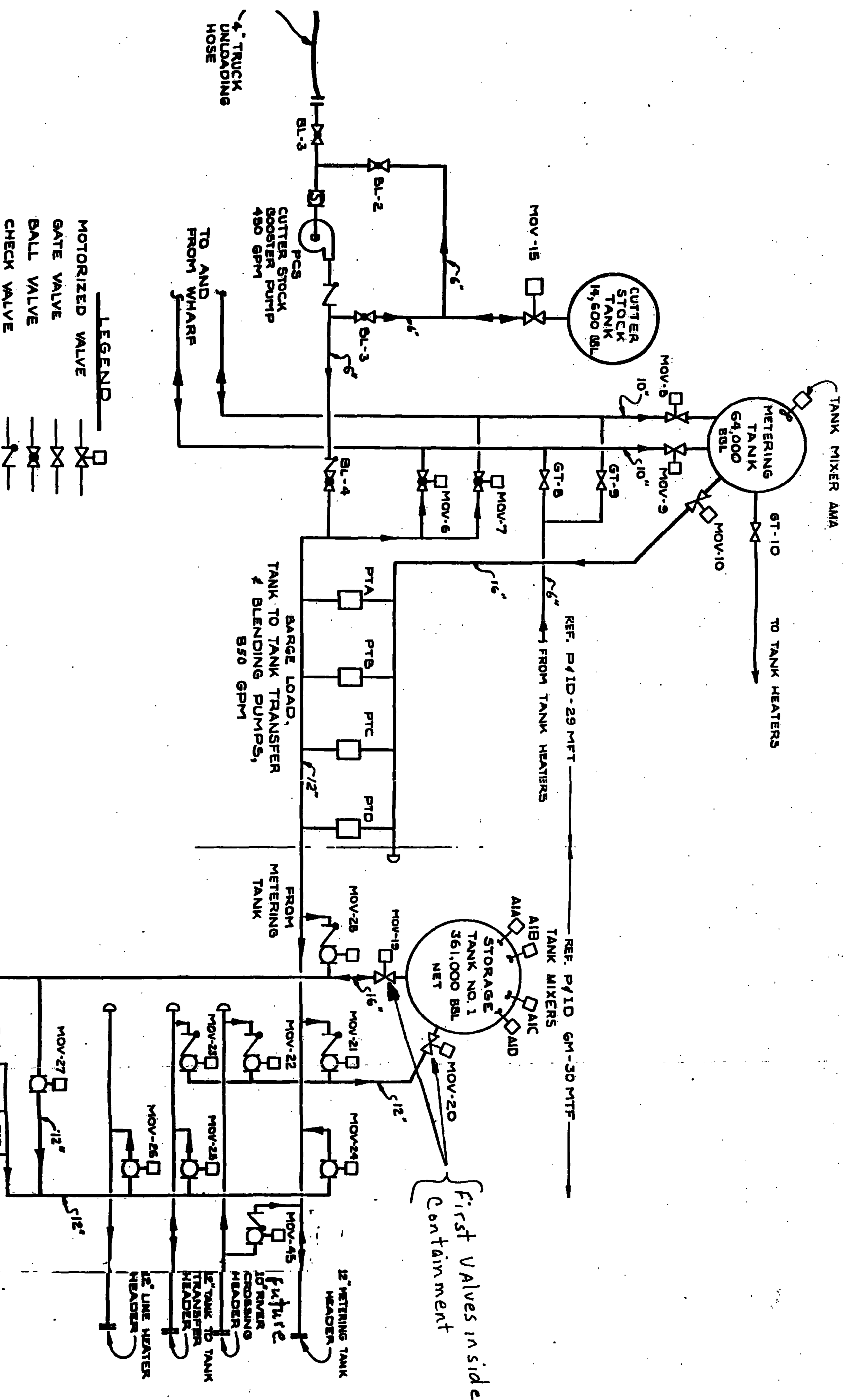
PRESSURE REGULATOR

VENT



TRANSFER TO STORAGE SCHEMATIC DIAGRAM FSD-3

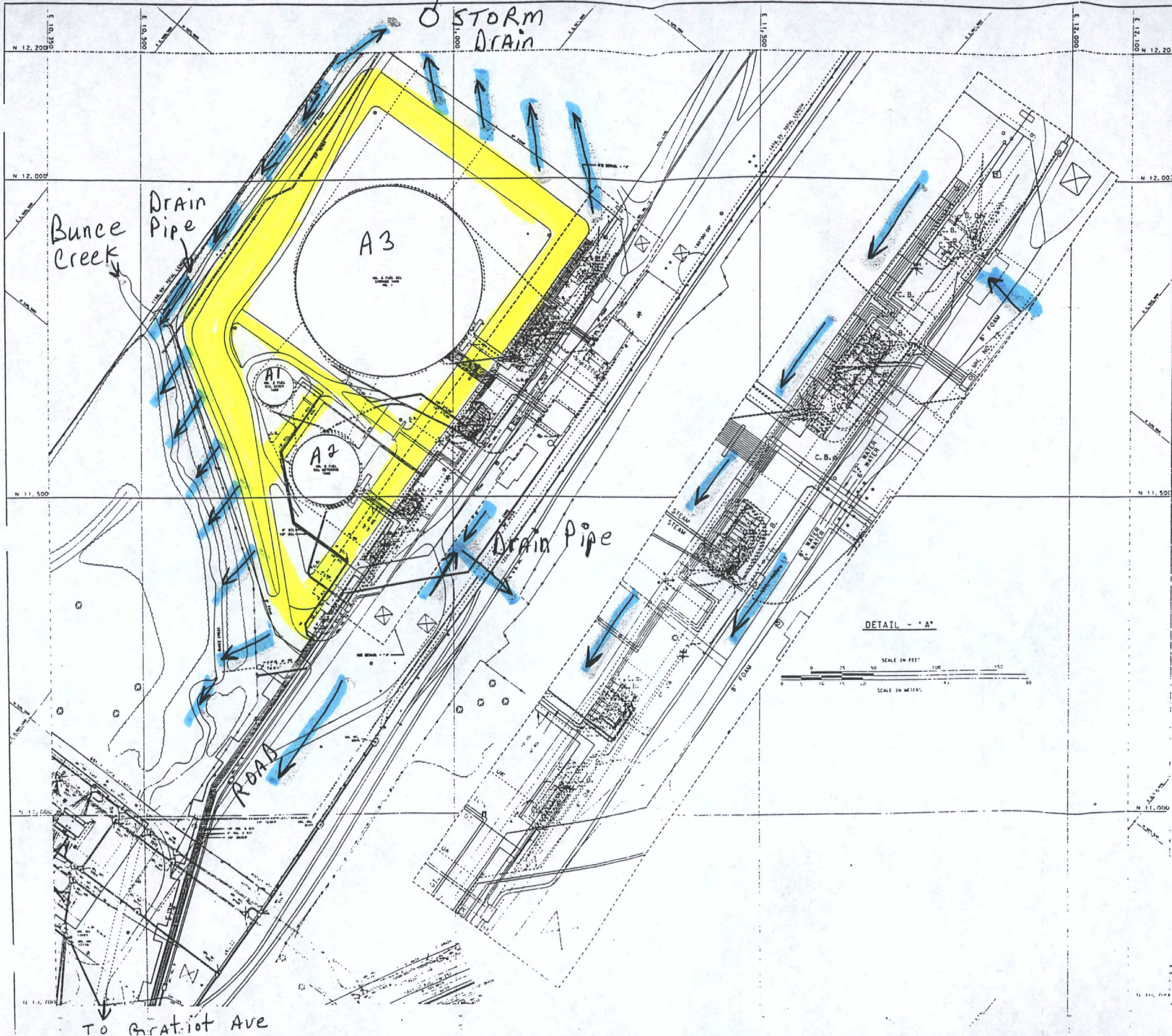
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 Captain of the Port Detroit
 Date FEB 27 2001
 Signed *AKG* *AKG*



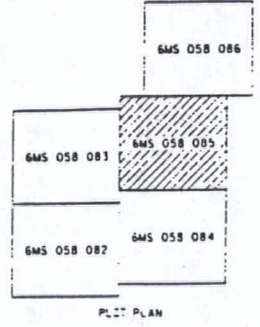
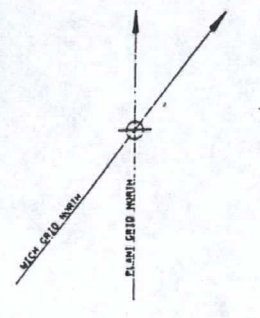
TRANSFER TO STORAGE SCHEMATIC DIAGRAM FSD-3

Examined by the U.S. Coast Guard
 Captain of the Port Detroit
 Date FEB 27 2001
 Signed *[Signature]*

pg. 199



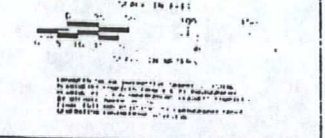
MICHAEL BAKER, JR., INC.
CONSULTING ENGINEERS
BIRMINGHAM, ALABAMA



CODE

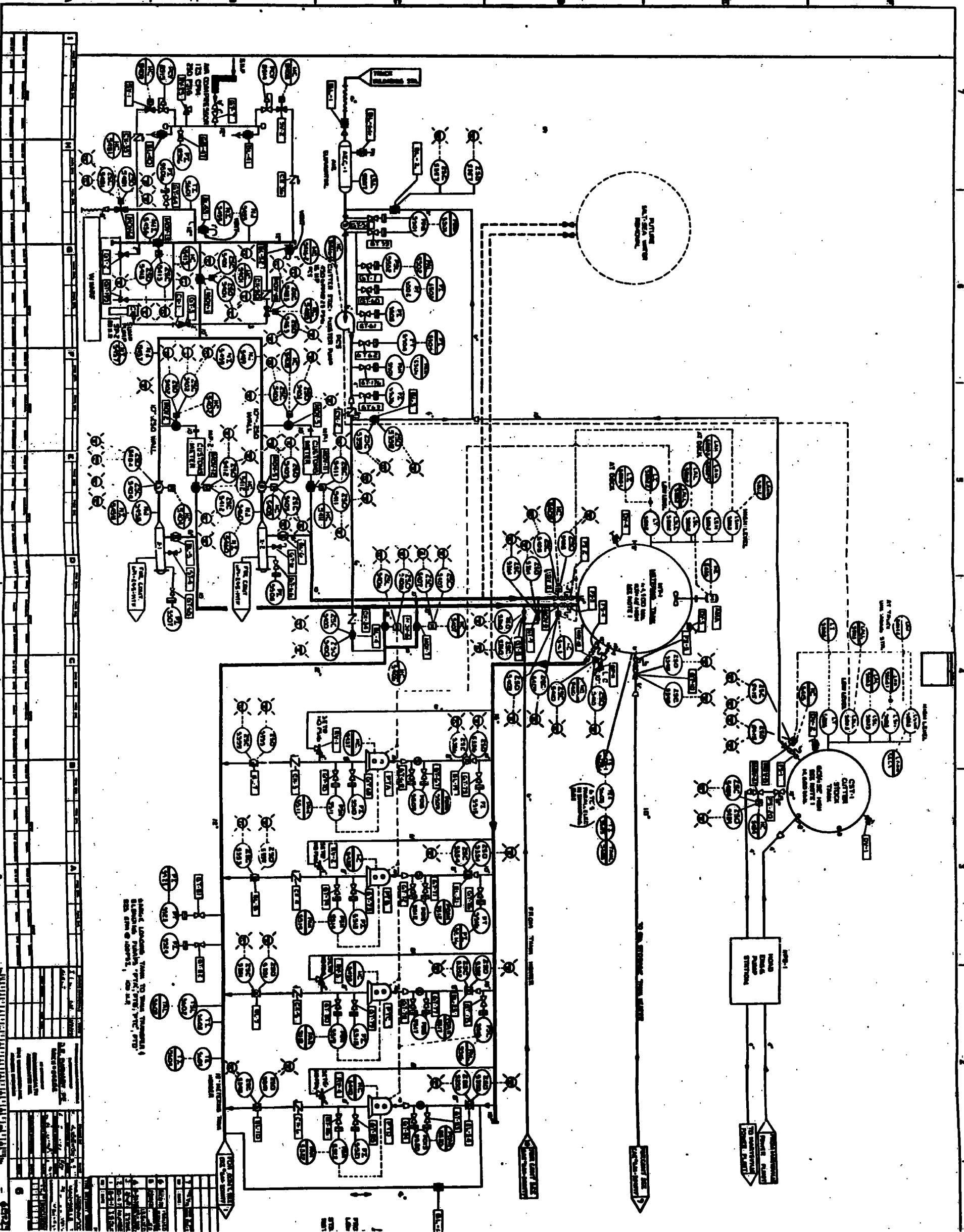
DUCT RUNS	=====
BURIED CABLE	=====
SEWERS & DRAINS	=====
CONCRETE ENCASED	=====
AIR	=====
GAS	=====
GASOLINE	=====
OIL	=====
STEAM	=====
CITY WATER	=====
GEN SER WATER	=====
CITY SER WATER	=====
FIRE PROTECTION	=====
CHEMICAL LINES	=====
OILY WASTE	=====
POSITION DOUBTFUL	=====

Site Drainage
Berm

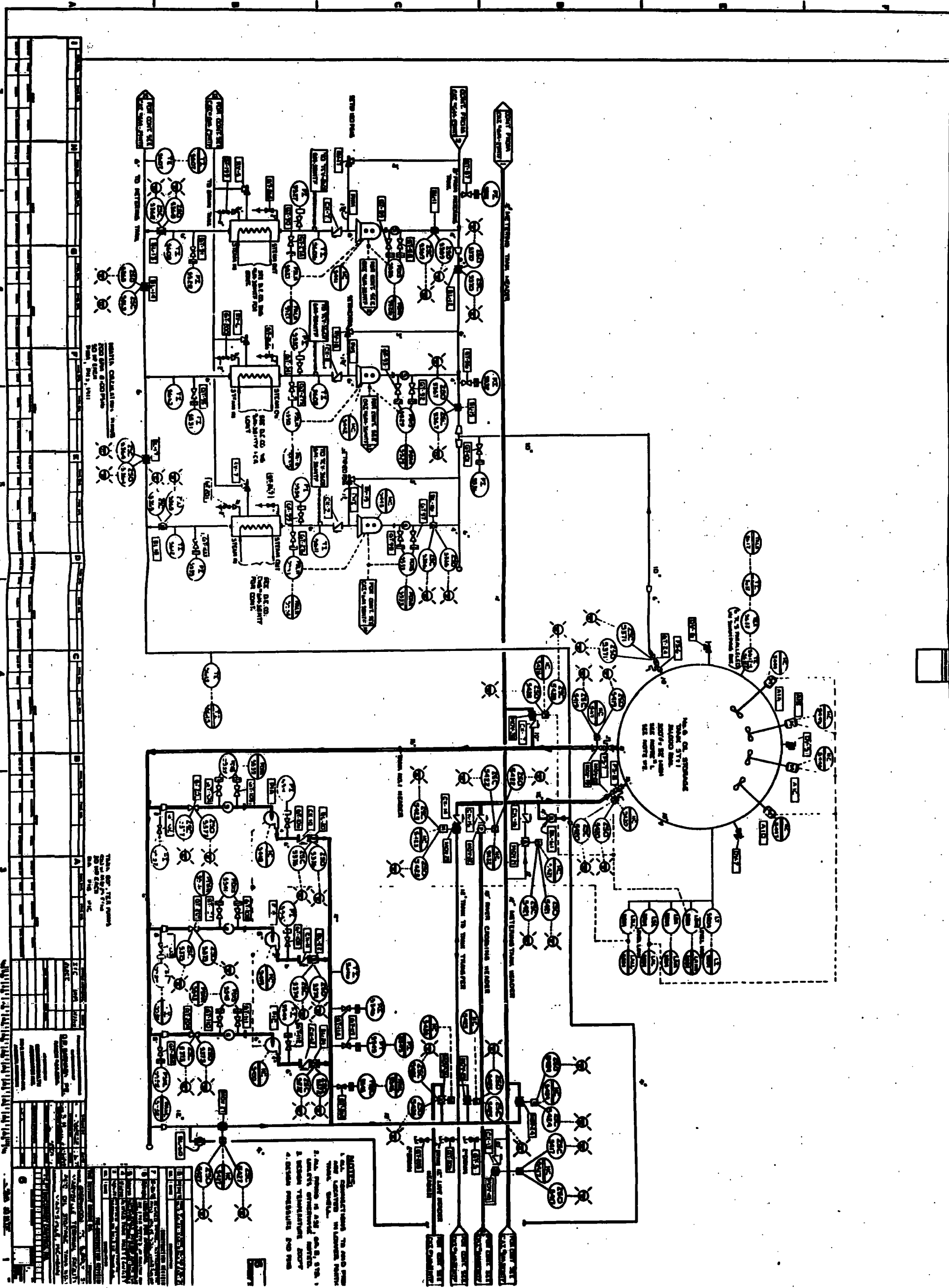


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Captain of the Port Detroit
Date FEB 27 2001
Signed [Signature]

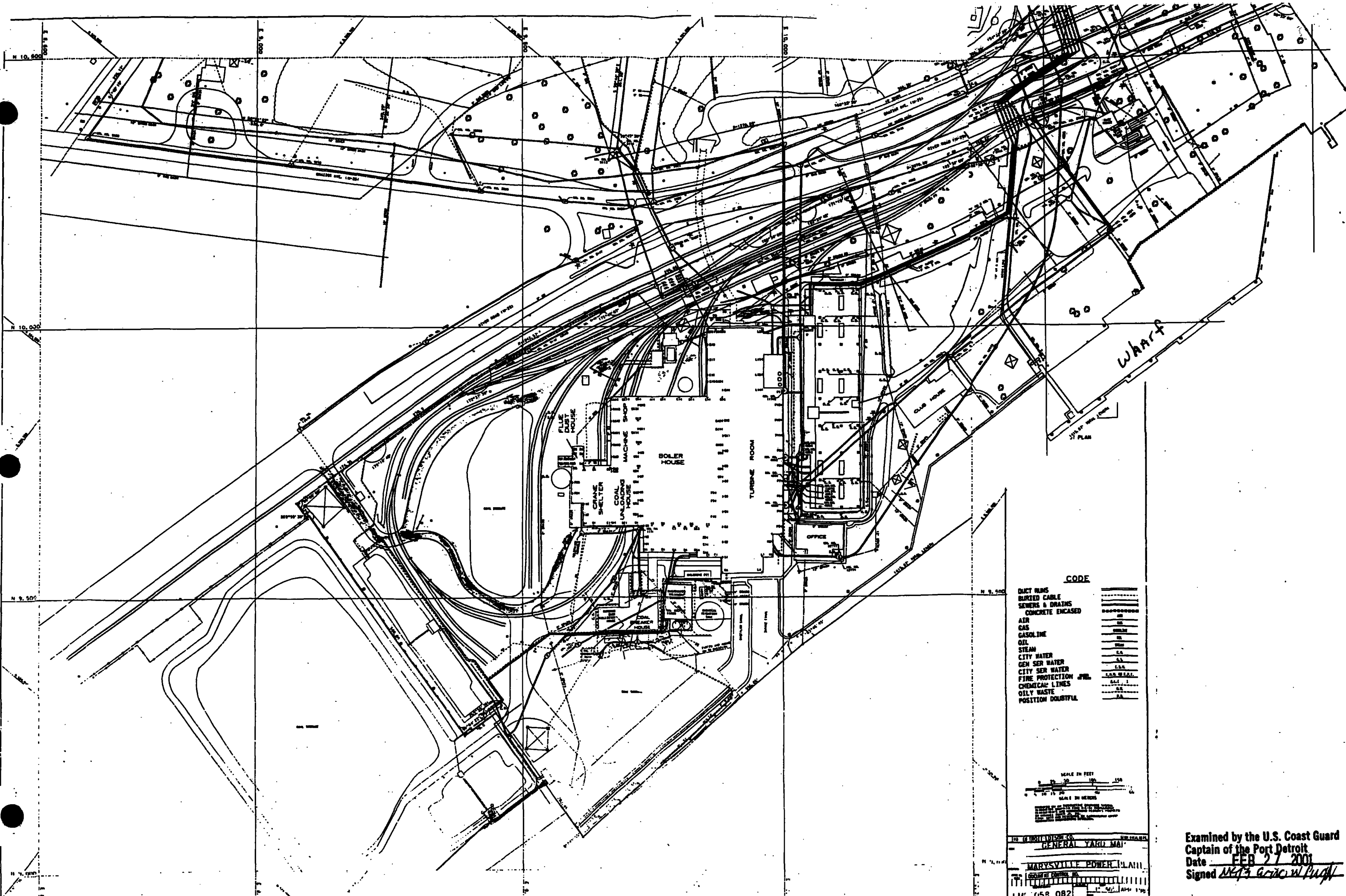




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 Captain of the Port Detroit
 Date _____
 Signed D. H. Z.

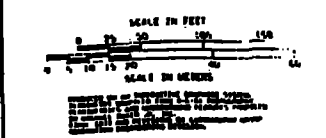


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 Captain of the Port Detroit
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 Signed



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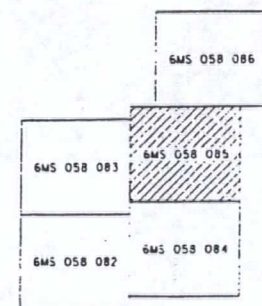
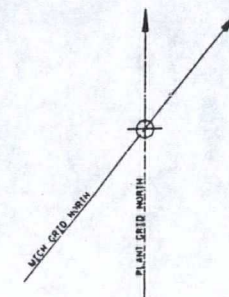
DUCT RUNS	----
BURIED CABLE	-----
SEWERS & DRAINS	~~~~~
CONCRETE ENCASED	=====
AIR	----
GAS	----
GASOLINE	----
OIL	----
STEAM	----
CITY WATER	----
GEN SER WATER	----
CITY SER WATER	----
FIRE PROTECTION JWB	----
CHEMICAL LINES	----
OLLY WASTE	----
POSITION DOUBTFUL	----



THE GEORGE L. BROWN CO. DRAWN BY: [Signature]
GENERAL YARD MAP
MARYSVILLE POWER PLANT
1:10,000
1" = 100' 1" = 30.48m
1:10,000
1" = 100' 1" = 30.48m

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Captain of the Port Detroit
Date FEB 27 2001
Signed *W. J. G. W. W. W.*

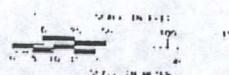
MICHAEL BAKER JR., INC.
CONSULTING ENGINEERS
DEALERS, PENNSYLVANIA



PLOT PLAN

CODE

DUCT RUNS	----
BURIED CABLE	-----
SEWERS & DRAINS	=====
CONCRETE ENCASED	=====
AIR	----
GAS	----
GASOLINE	----
OIL	----
STEAM	----
CITY WATER	----
GEN SER WATER	----
CITY SER WATER	----
FIRE PROTECTION	----
CHEMICAL LINES	----
OILY WASTE	----
POSITION DOUBTFUL	----



SHOWN TO THE PROPERTY OWNER
BY THE ENGINEER
ON THE DATE OF THE SURVEY
AND THE ENGINEER'S CERTIFICATE
OF THE SURVEY
AND THE ENGINEER'S CERTIFICATE
OF THE SURVEY

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Captain of the Port Detroit
Date FEB 27 2001
Signed M. B. Baker Jr. W. P. Baker

Oil filled Transformers

TO Gratiot Ave

Functional Description
No. 2 Wharf On/Off
Loading Facility

7.1.4.3 FUNCTIONAL DESCRIPTION NO 2 FOR WHARF ON/OFF LOADING FACILITY.

On the following pages is a functional description for wharf on/off loading facility. Starting with an unnumbered cover page, then an unnumbered index page, followed by 49 numbered pages.

FUNCTIONAL SYSTEM DESCRIPTION NO. 2

"WHARF ON/OFF LOADING FACILITY"

FOR

THE DETROIT EDISON COMPANY

BY

COMMONWEALTH ASSOCIATES INC.

FOR

MARYSVILLE TERMINAL FACILITY

ST. CLAIR COUNTY, MICHIGAN

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Captain of the Port Detroit
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Signed 212

FUNCTIONAL SYSTEM DESCRIPTION NO. 2

INDEX

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
1.0	SYSTEM FUNCTION	-1-
2.0	DESIGN CRITERIA	-12-
3.0	SYSTEM COMPONENTS	-16-
4.0	MODES OF OPERATION	-20-
5.0	LOGIC DIAGRAMS	-39-
6.0	SYSTEM INTERFACES	-40-
7.0	LIMITATIONS	-41-
8.0	SAFETY ASPECTS	-44-
9.0	REFERENCES AND ATTACHMENTS	-50-

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1.0 SYSTEM FUNCTION

1.1 REFERENCE DIAGRAMS

The following schematic diagrams are attached to this section for reference.

<u>NUMBER</u>	<u>TITLE</u>
Schematic Diagram FSD-2A	"Wharf On/Off Loading Facility"
Schematic Diagram FSD-2B	"Trestle Pipeline Evacuation System"
Schematic Diagram FSD-3	"Transfer to Storage"

1.2 PRIMARY FUNCTION AND MODES

The primary function of the Barge ON/OFF loading facilities is to load an off load barges carrying No. 6 fuel oil.

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Captain of the Port Detroit
Date _____
Signed PAZ

There are five modes of operation as listed below.

- 1.2.1 Barge off loading mode.
- 1.2.2 Barge on loading mode.
- 1.2.3 Trestle piping evacuation mode.
- 1.2.4 Hot oil circulation mode.
- 1.2.5 Pipeline pigging mode.
- 1.2.6 The operating procedures for the above modes are described in Section No. 4 of this document. The hot oil circulation and the pipeline pigging modes are further expanded in FSD No. 8 (Oil Heating System) and No. 9 (Pipeline Pigging) respectively.

1.3 WHARF CAPABILITY

- 1.3.1 The Wharf facilities at the Marysville terminal are designed to on load or off load fuel oil barges up to 8,000 DWT (approximately 50,000 bbls) with provisions for future installation of tanker

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Signed DLR

off-loading facilities. The Wharf itself is designed to berth tanker ships up to 10,000 DWT capacity but additional mooring dolphins and dredging will be required because of the length and draft of these ships.

1.4 METERING

1.4.1 Barge receipts will be metered by positive displacement meters in accordance with U.S. Customs requirements. (Further described in FSD No. 15 entitled "Customs Requirements.") Two 10-inch Positive Displacement Metering Stations are provided to be used in parallel for large barge discharge flowrates.

1.4.2 The meter stations are designed as MP-1 and MP-2. A flow limiting valve on each meter limits the maximum flowrate to 2450 gpm.

1.4.3 An air eliminator is located upstream of each meter, with air relieving capacity to handle the full displacement of the barge pumps.

1.5 BARGE OFF-LOADING

1.5.1 Barge off-loading will be accomplished by the use of barge pumps provided by the barge operating company. Pumping facilities for off-loading barges are not provided at Marysville. The maximum design off-loading rate for the largest barges (50,000 bbls) is 4900 gpm.

1.5.2 As shown on the P&ID's and Schematic Diagram FSD-2A, the 12-inch pipeline leaving the wharf trestle branches into two 10-inch pipelines which feed direct through the meters and into the metering tank. The two 10-inch lines also connect to the 12-inch metering tank header for pumping direct to the main storage tanks.

1.6 OFF-LOADING ALTERNATIVE MODES

1.6.1 Barge off-loading can be accomplished by pumping through the metering station directly to storage Tanks No. 1 or No. 2. As an alternative, barges may pump directly into the metering tank if the metering stations are out of service. Tank gauging

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is an acceptable alternative to positive displacement metering for custody transfer measurement.

Pumping directly to the storage tanks through the PD meters should be the normal operating mode for barge off-loading, however.

1.7 **BLENDING**

1.7.1 Barge receipts of off-specification fuel oils, that require blending with a lighter fuel oil (Cutter Stock) for the purpose of viscosity or sulfur content control, can be pumped through the PD meters to the metering tank where blending can be accomplished. The blending function is further described in FSD No. 3 entitled "Transfer to Storage."

1.8 **BARGE ON-LOADING**

1.8.1 Barge on-loading is accomplished by pumping from the metering tank to the barges. Three 850 gpm barge loading pumps and one, equal capacity, spare pump are provided for this purpose. The pumps are designated as Pumps PTA, PTB, PTC and PTD. Metering

for barge on-loading is accomplished by tank level gauging in the metering tank. PD meters are not provided at Marysville for barge on-loading purposes. The U.S. Customs Department will not be involved in barge on-loading operations as the exportation of fuel oil from Marysville is not a design criterion.

- 1.8.2 Prior to barge on-loading operations, the required quantity of fuel oil for each loading (50,000 bbls maximum) must be transferred from one of the storage tanks to the metering tank. This transfer is accomplished by using the appropriate booster pump station from either Tank No. 1 or Tank No. 2. FSD No. 4 entitled, "Mainline Pumping," described this transfer.

1.9 TRESTLE PIPE EVACUATION

- 1.9.1 The 12-inch diameter, 100-foot long trestle pipeline from the wharf to the shore, serves as the single conduit for on/off loading of barges. This line shall be evacuated of all oil after each barge on-loading or off-loading operation. This

reduces the possibility of oil spills and resultant pollution of the river.

1.9.2 The trestle pipeline is evacuated by a line sphere displacement method using compressed air as the motive force for driving the pipeline sphere. After a barge delivery, oil displaced by the sphere (approx. 620 gallons) in moving from the wharf to the shore, will discharge into the 10-inch onshore oil piping system.

1.9.3 The air compressor for this operation is located on the wharf. The sphere launcher/receiver is located at the wharf end of the 12-inch trestle pipeline.

1.9.4 Pig signals are located on the pipeline to indicate the position of the sphere before and after each barge operation. The sphere remains in the launcher/receiver during all on/off loading operations.

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1.9.5 A 170-gallon drain sump is located on the wharf. It is equipped with a sump pump for pumping slops back into the onshore loading pipeline via a 2-inch pipe which is bundled with the 12-inch insulated trestle pipeline. Drawing FSD-2B (attached) shows the schematic diagram of the trestle pipe evacuation system.

1.10 PIPELINE PIGGING

1.10.1 The function of the barge loading facility pipeline cleaning system is to periodically scrape the interior walls of the twin 10" oil loading pipelines from the shore to the tank farm. The scraping operation prevents build-up of residue on the pipe walls. The build-up of a heavy waxy residue on residual fuel oil pipelines seriously reduces the cross sectional area of the pipeline. The frequency of the cleaning operations will be determined by operating experience and is further discussed in FSD No. 9 entitled "Pipeline Pigging."

1.10.2 As shown on P&ID 6M-29MTF, Scraper Launcher/Receivers X1 and X2 are provided at the terminal ends of the 10-inch barge on/off-loading piping

loop. Piping and valving is arranged to accomplish pipeline cleaning between barge on-loading or off-loading operations. One of the barge loading pumps is used as the motive power to move the cleaning pig in the pipeline.

- 1.10.3 A thorough description of the pigging operations is described in FSD No. 9 of this document.

1.11 PIPELINE AND TANK HEATING

- 1.11.1 The onshore barge off/on loading pipelines and the metering tank will be maintained at a minimum temperature of 120°F during all non-loading periods by a hot oil circulation system as described in FSD No. 8 "Oil Heating System." All aboveground oil piping will be insulated and electrically heat traced, except for off-shore piping on the Wharf and Trestle which will be insulated and heat traced.

1.12 PIPELINE DISPLACEMENT

- 1.12.1 During an emergency condition when the oil heating system is out of commission, or during long shutdown

periods, the oil in the onshore piping systems can be displaced with a lighter grade oil (Cutter Stock) as described in FSD No. 10 "Cutter Stock Displacement System."

1.13 CONTROL SYSTEMS

1.13.1 The basic control system for barge off/on loading facilities is manual. Motorized valves are local pushbutton operated or remote pushbutton operated from the mimic panel in the control center, or at local control panels as indicated on the P&ID's. All pump start-stop control is by switches on the mimic panel in the control center except for small sumps which are locally controlled.

1.13.2 Logic diagrams for each operated piece of equipment, pertaining to this FSD, are included in Section 5 of this document. Logic diagrams show the control points and the remote position indication locations by panel designation for each piece of equipment.

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1.13.3 The valve and instrumentation list included in Section 6 of this document shows the panel location for control points and remote position indication points for each motorized valve and item of instrumentation.

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2.0 DESIGN CRITERIA

2.1 The following design data establishes the capabilities and limitations of the barge off/on loading facilities as developed from the basic criteria.

Maximum Barge Capacity 50,000 bbl (8,000 DWT)
(No. of days supply to Greenwood: 2.74 days)

Expected Normal Barge Data: (Hanna Barges - Sunoco)

<u>Capacity</u>	<u>Length (ft.)</u>	<u>Beam (ft.)</u>	<u>Draft (ft.)</u>	<u>Normal Unloading Time Hours</u>
50,000	300	62.6	18.0	12
29,000	268	52.6	11.2	8 to 9*
20,000	239	48.2	11.2	5 to 6*

*Estimated

Maximum Off-Loading Rate: 7000 BPH = 4,900 gpm

Maximum PD Meter Rate: 2450 gpm x 2 = 4,900 gpm

Meter Flow Limiting Valve
Setting: 2450 gpm x 2 = 4,900 gpm

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Minimum Required Discharge Head of Barge Pumps	=	125 psig
Maximum Allowable Discharge Head of Barge Pumps	=	150 psig
Maximum Service Pressure Rating of Onshore Piping Systems	=	275 psig
Minimum Allowable Oil Temperature of Barge Receipts @ 4900 gpm	=	130°F
Minimum Allowable Viscosity of Barge Receipts (No. 6 F.O.)	=	2,500 SSU
Minimum Metering Tank Storage Temperature	=	120°F
No. of Transfer Pumps Available for Barge Loading	=	3 + 1 spare
Transfer Pump Data: 100 Hp, 850 gpm ea. @ 100 psi TDH		
Maximum Barge Loading Rate, 3 pumps @ 850 gpm ea.	=	2,550 gpm 3642 BPH
Minimum Barge Loading Rate, 1 pump @ 850 gpm ea.	=	850 gpm

Metering Tank Data:

Gross Capacity @ 40 ft level	=	67,435 bbl
Networking Capacity	=	61,774 bbl
High - High Level @ 39.5 ft.	=	66,591 bbl
High Level @ 38.5 ft.	=	64,899 bbl
Low Level @ 4.0 ft.	=	6,509 bbl
Low - Low Level @ 3.0 ft.	=	4,817 bbl
Average bbl/ft.	=	1,692 bbl/ft.

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Storage Tanks 1 and 2 Data:

Gross Capacity @ 32 ft.	=	402,000 bbl
Networking Capacity	=	358,010 bbl
High - High Level @ 31.5 ft.	=	395,700 bbl
High Level @ 30.5 ft.	=	383,140 bbl
Low Level @ 4.0 ft.	=	50,250 bbl
Low - Low Level @ 3.0 ft.	=	37,690 bbl
Average Capacity Per Ft. of Height	=	12,560 bbl/ft.

2.2 BARGE OFF/ON LOADING HOSE CONNECTION

2.2.1 The criteria for the wharf 12-inch valved hose connection is based on one discharge hose only for any barge. The diameter of the barge discharge hoses will vary with the size of the barge. An 8-inch diameter hose for large barges of the 40,000 to 50,000 bbl class is the largest expected. The smallest expected hose is 4-inch diameter. Hose handling equipment is not provided on the wharf.

2.2.2 The barge hose connection interface at the wharf is an 8-inch diameter ANSI R.F. 150 lb. flange. Arrangements must be made with the particular

barge transport contractor for the furnishing of the required hose adaptors. Hose adaptors are normally carried on the barges.

2.2.3 Oil velocity in the barge hoses will be dictated by the capacity of the barge pumps. At the maximum acceptable barge off-loading rate of 4,900 gpm the approximate hose velocities will be:

6-inch diameter hose = 55 ft./sec.

8-inch diameter hose = 32 ft./sec.

2.3 METERING - AIR ELIMINATORS

Each of the two positive displacement barge off-loading metering stations, identified as MP-2 and MP-3, is equipped with an air eliminator with air release devices which have the following capacities:

340 scfm @ 30 psig

420 scfm @ 40 psig

560 scfm @ 60 psig

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3.0

SYSTEM COMPONENTS

The following list covers the major components of the barge on/off loading facilities only.

3.1

BARGE OFF-LOADING METERING STATION

Number: 2 each

Manufacturer and Model Type and Size: 10" diameter positive displacement type with counter register and remote ticket printing

Capacity: 400 to 2,450 gpm

Accessories:

- A. Air Eliminator
- B. Flow Limiting Valve
- C. Strainer
- D. Automatic Temperature Compensator
- E. Specific Gravity Selector Unit
- F. Prover Connections

P&ID Equipment No.: MP-1 and MP-2

3.2

METERING TANK

Number: 1 each

Type: Steel, vertical cylindrical with cone roof

Capacity: Gross 67,435 bbl
Networking 60,082 bbl
110 ft. dia. x 40 ft. high

Accessories:

- A. Fixed Low Expansion Foam System
- B. Automatic Tank Gauge with Remote Readout and Level Alarms

P&ID Equipment No.: MT-1

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3.3 TANK MIXER (METERING TANK)

		<u>Motor Data:</u>
Number:	1 each	25 HP - 1800 RPM
Manufacturer:	Jensen	3Ø 60 Hz
Model:	650 VA25	230/460 Volts
HP:	25	Exp. Proof Housing
P&ID Equipment No.:	AMA-1	284-"T" Frame
		1.0 Service Factor
		NEMA Design "B"
		Class NEMA 1
		Grp. D-Div. 1

3.4 BARGE LOADING PUMPS

Number: 4 each (3 plus one spare)

Type: Positive Displacement

Manufacturer: DeLaval

Model No.: Type 323F550

Capacity: 850 gpm ea.

TDH: 100 psi

HP: 100

RPM: 690

P&ID Equipment No.'s: PTA, PTB, PTC, PTD

Pump Motor Data:

Manufacturer: Westinghouse

HP: 100

RPM: 690

Enclosure: TEFC

Power: 460V/3 phase/60 Hz

Frame: 449TS

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3.6.2 Cleaning Pigs

Manufacturer and
Model No.:

T. D. Williamson Co.,
Model No. WCK-3, Pig Scraper
Bull. #359.D

Quantity:

4

3.7 SUMP PUMP

Manufacturer and
Model No.:

Goulds Pump Inc.
3171

Head:

175 ft. liq.

Capacity:

20 gpm

Motor HP:

20

P&ID Equipment No.:

SP-2

3.8 DRAIN TANK

Manufacturer:

Buffalo Tank Co.

Size:

5,000 gallons

Type:

Horizontal Cylindrical

P&ID Equipment No.:

DT-1

3.9 AIR COMPRESSOR

Manufacturer and
Model No.:

Worthington Model 3CHP

Capacity:

10.4 CFM

HP:

3-5 AP

Discharge Pressure:

250 psig

P&ID Equipment No.:

AC-1

3.5 PIPING

3.5.1 Insulated Piping-Underground

Size: 10 inch nominal
Length: Approximately 2000 Lin.
Ft. each (2 parallel lines)
Material: API 5L X-52 ERW 0.25" wall
Insulation: 2 inch thick, Polyurethane

3.5.2 Trestle Piping

Size: 12 inch nominal
ASTM A-53B ERW, Carbon
Steel, Standard Weight
Insulated with 1 1/2 inch
Fiberglass and Heat Traced
Length: Approximately 100 Lin. Ft.
Velocity: 14 ft./sec. @ 4,900 gpm

3.6 PIPELINE CLEANING (PIGGING) SYSTEM

3.6.1 Pig Launcher/Receivers

Quantity: 2
Manufacturer: Taylor Model No. 6946-1
& -2
Size Pipe Connection: 10 inch dia.
Enclosure Size: 12 inch dia. 2/hinged
closure
P&ID Equipment No.: X1 and X2

4.0 MODES OF OPERATION

4.1 GENERAL

4.1.1 The operating procedures described herein cover the normal system preparations and operating procedures for the listed modes of the Wharf On/Off Loading Facilities. The operating procedures for alarm and/or emergency modes are not covered in this section. Alarms pertinent to the safety aspects of the systems are described in Section 8.0 of this FSD.

4.1.2 System preparation and operating procedures for the listed modes of operation are covered herein. Refer to Schematic Diagrams FSD-2A, FSD-2B & FSD-3 while following the procedures.

4.2 BARGE OFF-LOADING - DIRECT TO STORAGE TANKS

4.2.1 System Preparation

The following procedures should be completed prior to making the barge discharge hose connection at the wharf:

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4.2.1.1 Select the storage tank to be used for the barge receipt (assume Storage Tank No. 1 for this example procedure). Check that the storage tank has enough ullage space to receipt the capacity of the barge. Take into consideration the simultaneous delivery of oil from the Sunoco pipeline and/or the discharge of oil to Greenwood from Tank No. 1, if applicable. (Use Tank No. 1 Liquid Level Indicator LI-5804 on MCP and record as required.)

4.2.1.2 Prepare meter stations MP-1 and MP-2. Insert the required number of tickets in the meter ticket printers. Close and seal valves MOV-4 and MOV-5 in accordance with the U.S. Customs Department requirements. Sealing of valves is required to prevent bypassing of meters during custody transfer operations.

4.2.1.3 Discontinue hot oil circulation through the 10-inch off/on-loading pipelines as follows:

Close Valves GT-8, GT-9 and GT-10.

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Stop Heater Circulating Pump PHM and/or spare Pump PHS. The Heater Circulating Pump PHI for Tank No. 1 may continue to operate during barge off-loading.

Note: Hot oil circulation through the metering tank is discontinued during barge off-loading.

- 4.2.1.4 Discontinue all transfer operations from the metering tank to storage tanks.
- 4.2.1.5 Discontinue all blending operations in the metering tank.
- 4.2.1.6 Cutter Stock tank filling operations by truck unloading may continue during barge off-loading.
- 4.2.1.7 Check that all drain and vent valves are closed.
- 4.2.1.8 Position the sytsem valves in the sequence listed below. The control points for motorized valves are indicated by the respective control panels.

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Close the below listed valves:

VALVE NO.	PANEL NO.
MOV-62	WCP
MOV-60	WCP
MOV-13	WCP
MOV-4	SCP (See Para. 4.2.1.2)
MOV-5	SCP (See Para. 4.2.1.2)
BL-5	Local - Manual
BL-6	Local - Manual
BL-4	Local - Manual
MOV-50	MCP (Tank No. 2 Discharge Valve)

Open the below listed valves:

VALVE NO.	PANEL NO.
MOV-19	MCP (Tank No. 1)
MOV-28	MCP (Tank No. 1)
MOV-6	MCP
MOV-7	MCP
MOV-11	SCP
MOV-12	SCP
MOV-2	SCP
MOV-3	SCP
MOV-1	WCP

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4.2.1.9 Check that the wharf air compressor is operable and that the wharf air receiver is up to pressure (200 psig, check PI-8516).

4.2.1.10 Check that the displacement sphere is located in the receiver at the wharf end of the 12-inch trestle pipeline. (Check pig signal NJI-5456).

4.2.2 Barge Off-Loading Procedure

4.2.2.1 Make the barge discharge hose connection

4.2.2.2 Open MOV-62 @ Panel WCP

4.2.2.3 Start barge pumps

4.2.2.4 Check the automatic air release heads on the air eliminators at Meter Stations MP-1 and MP-2 to be sure they are functioning properly. The initial air in the barge hoses will be relieved through the air release heads.

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4.2.2.5

Check the digital meter counter registers at the Meter Stations MP-2 and MP-3 to be sure they are functioning properly. The counter readings for each meter should register at approximately the same rate.

4.2.2.6

Check the rise in level of the Storage Tank No. 1, (observe LI-5804). If pumping to Greenwood or receipt from the Sunoco pipeline modes are not conducted simultaneously from Tank No. 1, the rate of rise in the tank from barge off-loading should be approximately 12,560 bbl/ft or 1,046 bbl/inch.

4.2.2.7

The number of barge pumps operating will not affect the onshore facilities. However, any throttling of the barge pumps below the minimum capacity of the meters (400 gpm per meter) should not be permitted.

4.2.2.8

Line pressures and temperatures should be observed and recorded throughout the barge off-loading operation.

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Observe TI-5601 at the wharf

Observe PI-5506 at the wharf

The frequency of temperature and pressure measurements will be determined by operating experience.

4.2.2.9

Fuel oil samples can be taken at Drain Gate Valve GT-195 or Vent Valve BL-53, each located on the 12-inch oil line at the wharf.

4.2.2.10

Close coordination between the wharf operator and the barge operator is required at the completion of the barge off-loading. When barge compartments are empty, barge pumps begin to discharge air. This operation may continue for a short period to blow out the barge hose. At this point the following operations should be followed:

4.2.2.10.1

After air blowing has continued for no longer than 15 seconds, actuate hand controls HC-5401 and HC-5481 at the WCP to close MOV-1 and MOV-62, respectively.

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MOV-1 will close in 15 seconds

MOV-2 will close in 18 seconds

4.2.2.10.2 Simultaneously at the closing of MOV-1, stop the barge pumps.

4.2.2.10.3 Open Vent BL-53 to relieve the air pressure in the wharf and trestle piping. Observe Pressure Indicator PI-5506 at the wharf until gauge reads zero (0) psig.

4.2.2.10.4 Disconnect the barge hose.

4.2.2.10.5 Print tickets at meter ticket printers on Meter Stations MP-2 and MP-3 or at remote printers in the control center if installed.

4.2.2.10.6 Open Valves MOV-8 and MOV-9 at MCP.

Open Valves MOV-4 and MOV-5 at SCP.

Open hand operated Ball Valves BL-5 and BL-6 at Pig Launcher/Receiver X-1 and X-2 respectively. This operation will allow oil flow from the metering tank into the piping to the wharf to displace air in the system.

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4.2.2.10.7 Observe the air eliminator heads at Meter Stations MP-2 and MP-3. Allow sufficient time for all air to be displaced from the 10-inch underground piping to the wharf.

4.2.2.10.8 After completion of the previous air elimination operation, position the valves listed below in preparation for the hot oil circulation mode.

Close the below listed valves:

VALVE NO.	PANEL NO.
MOV-28	MCP
MOV-6	MCP
MOV-7	MCP
MOV-9	MCP
MOV-2	SCP
MOV-3	SCP
MOV-11	SCP
MOV-12	SCP

Open the below listed valves:

GT-8	Local manual in 6" tank heater line
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GT-10

Local manual at
metering tank

4.2.2.10.9 All valves should now be in position for hot oil circulation through the 10-inch barge off/on-loading loop.

Start the selected heater circulating pump (PHM or PHS).

4.2.3 Trestle Pipe Evacuation

4.2.3.1 The following procedure should be followed to evacuate the trestle and wharf oil piping of all residual oil upon completion of any barge off-loading or on-loading operation. (This operation can be conducted entirely from the wharf.) Check to be sure Solenoid Valves SV-1 and SV-2 are closed.

4.2.3.2 Open MOV-60 at WCP
Open MOV-13 at WCP
Open Solenoid Valve SV-1 at SCP

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4.2.3.3

Observe pig signal NJI-5456 to be sure the sphere has been launched. Sphere should now be moving toward the shore, displacing the oil in the 12-inch trestle pipe via the 3-inch valve MOV-60, into the 10-inch onshore piping upstream of MOV-1. Observe the automatic starting of the air compressor.

4.2.3.4

Observe pig signal NJ-5455 on the WCP to be sure the sphere has arrived at the shore end of the 12-inch pipeline (time of travel should be less than one minute). Observe the pressure in the 12-inch air receiver (PI-8516). Observe the pressure in the 12-inch air receiver (PI-8516). Observe the regulated air pressure (on PI-5506), which should read approximately 40 psig.

4.2.3.5

Close MOV-60 at WCP

Close SV-1 at WCP

Open GT-3 (sump pump discharge valve)

Observe that power is on to Sump Pump SP-2

Observe drain valves GT-2 and GT-195

Open SV-2 at WCP

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- 4.2.3.6 Observe pig signal NJ-5455 to be sure the sphere is now moving toward the wharf. The sphere will displace all remaining oil in the 12-inch header (approximately 30 gallons) into the wharf sump via Drain Valves (GT-2 and GT-195).
- 4.2.3.7 Observe that Sump Pump SP-2 is operating when oil level in sump rises to the float switch start level.
- 4.2.3.8 Observe pig signal NJ-5456 to be sure the sphere has returned to launching chamber at the wharf end of the 12-inch trestle pipe.
- 4.2.3.9 Close Solenoid Valve SV02. Observe PI-8516 to be sure the air compressor has recharged the air receiver to 200 psig.
- 4.2.3.10 Close MOV-13 at WCP
Close Drain Valves GT-2 and GT-195
Open Vent BL-52 or BL-53
Observe Pressure Indicator PI-5506
- When gauge reads zero (0) psig close all vent valves.

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4.2.3.11

Observe that Sump Pump SP-2 has emptied the sump to the low float switch level and the sump pump has stopped.

4.2.3.12

Observe that sump electric heater is operating.

4.2.4

Barge On-Loading

4.2.4.1

Observe LI-5802-2 on MCP to be sure the metering tank contains the quantity of oil for that particular barge load. (See FSD-4 for the transfer from storage to the metering tank operation.)

4.2.4.2

Deactivate the hot oil circulation operation through the metering tank and the 10-inch barge off/on-loading piping loop. Shut down the heater circulating Pump PHM or PHS.

4.2.4.3

Close the below listed valves:

VALVE NO.

PANEL NO.

MOV-8

MCP

MOV-9

MCP

MOV-10

MCP

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GT-8 Local manual in 6"
tank heater line

GT-9 Local manual in 6"
tank heater line

GT-10 Local manual at
metering tank

BL-4 Local manual in 6"
cutter stock line

MOV-2 SCP

MOV-3 SCP

MOV-11 SCP

MOV-12 SCP

4.2.4.4 Measure and record the liquid level in the
metering tank from LI-5802-2 and from tank
strapping table 74-22970.

4.2.4.5 Make the barge hose connection at the wharf.

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4.2.4.6

Open the below listed valves in sequence:

VALVE NO.	PANEL NO.
MOV-10	MCP
MOV-6	MCP
MOV-7	MCP
BL-5	At Pig Launcher X-1
BL-6	At Pig Launcher X-2
MOV-4	SCP
MOV-5	SCP
MOV-1	WCP
MOV-62	WCP

A limited flow rate of oil from the metering tank should now be entering the barge by gravity flow.

4.2.4.7

Start barge loading Pumps PTA, PTB, PTC or PTD in any combination up to three pumps to accomplish the desired barge on-loading rate as follows:

One pump operating - 850 gpm (1,214 bbl/hr)

Two pumps operating - 1,700 gpm (2,429 bbl/hr)

Three pumps operating - 2,550 gpm (3,642 bbl/hr)

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- 4.2.4.8 At the completion of the barge loading and at the prearranged signal from the barge operator, close MOV-62 at the WCP and stop the barge loading pumps immediately thereafter.
- 4.2.4.9 Measure and record the liquid level in the metering tank as per Para. 4.2.4.4.
- 4.2.4.10 Disconnect the barge hose.
- 4.2.4.11 Position valves as follows in preparation for the hot oil circulation mode.

Close the below listed valves:

VALVE NO.	PANEL NO.
MOV-1	WCP
MOV-6	MCP
MOV-7	MCP
MOV-10	MCP

Open the below listed valves:

VALVE NO.	PANEL NO.
MOV-8	MCP
GT-8	Local manual in 6" tank heater line

GT-10

Metering tank hot oil
to heaters line

4.2.4.12 Start the heater circulating Pump PHM or PHS.

4.2.5 Trestle Pipe Evacuation

After completing the barge on-loading operation, perform the Trestle Pipe Evacuation Operation in the same procedure as Para. 4.2.3.

4.2.6 Barge Off-Loading to Metering Tank

4.2.6.1 In the event that the Meter Stations MP-2 and/or MP-3 are out of commission, barge off-loading can be performed by receiving and measuring in the metering tank.

4.2.6.2 If the barge receipts are from a foreign source, all metering tank inlet and outlet valves must be sealed and a tank measurement made. Outlet valves (MOV-10 and GT-10) remain sealed during the barge delivery and

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are opened only after the final tank measurement is made in accordance with the U.S. Customs Department Regulations.

4.2.6.3

All procedures will be in accordance with Para. 4.2.1 and 4.2.2, except that valves shall be positioned to bypass the metering stations and to enter the metering tank instead of the storage tanks as follows:

Open the below listed valves:

VALVE NO.	PANEL NO.
MOV-4	SCP
MOV-5	SCP
MOV-8	MCP
MOV-9	MCP
BL-5	Pig Launcher X-1
BL-6	Pig Launcher X-2

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Close the below listed valves:

VALVE NO.	PANEL NO.
MOV-2	SCP
MOV-3	SCP
MOV-11	SCP
MOV-12	SCP
MOV-10	MCP (to remain sealed)
MOV-6	MCP
MOV-7	MCP
GT-10	Local Manual (to remain sealed)

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5.0 LOGIC DIAGRAMS

5.1 The below listed control logic diagrams are inserted in this section for reference. The diagrams cover the control logic for all major items of controlled equipment for the Marysville Terminal including those items specifically relating to this FSD.

5.2	<u>Drawing No.</u>	<u>Title</u>
	6M-480MTF	Logic Diagram Sheet No. 1, Marysville
	6M-481MTF	Logic Diagram Sheet No. 2, Marysville
	6M-482MTF	Logic Diagram Sheet No. 3, Marysville
	6M-483MTF	Logic Diagram Sheet No. 4, Marysville

6.0 SYSTEM INTERFACES

6.1 BARGE OFF/ON-LOADING

6.1.1 The 8-inch ANSI 150 lb. flanged barge hose connection is the interface at the wharf with the barge operating company. Reducing adapters for smaller diameter hoses will be furnished by the barge operators.

6.1.2 The two 10-inch diameter barge off-loading lines to the metering tank interface with the hot oil circulation system at Valves GT-8 and GT-9 located outside the metering tank dike and at Valve GT-10 located on the metering tank.

6.1.3 The barge off/on-loading system interfaces with the Cutter Stock supply system at Valve BL-4 located outside the metering tank dike.

7.0 LIMITATIONS

7.1 TEMPERATURE AND VISCOSITY

7.1.1 In contracting for oil transportation services with barge operating companies or oil suppliers, minimum temperature specification for fuel oil upon arrival at the wharf must be stipulated.

7.1.2 The minimum temperature of No. 6 Fuel Oil receipts will depend upon the viscosity properties of the oil purchased. A good ground rule is to specify an absolute minimum temperature of 125°F. The average viscosity of the heaviest expected grades of No. 6 Fuel Oil at 125°F will be approximately 750 SSU. (At 100°F the viscosity will rise to 2,000 SSU).

7.2 MAXIMUM BARGE OFF-LOADING RATE

7.2.1 The maximum acceptable barge off-loading rate is 4,900 gpm (7,000 bbl/hr). This rate is fixed and controlled by the flow limiting valves installed at each of the Metering Stations MP-2 and MP-3.

The valves are each set at 2,450 gpm. The valves are designed to protect the meters against excess flow.

7.3 MAXIMUM BARGE CAPACITY

7.3.1 The maximum acceptable barge capacity of 50,000 bbl (8,000 DWT) is dictated by the structural limitations of the wharf and berthing energy criteria for mooring vessels of this size. Larger vessels should not be employed.

7.4 MAXIMUM BARGE ON-LOADING RATE

7.4.1 The maximum barge on-loading rate is dictated by the capacity of the barge loading pumps listed below. Normal maximum on-loading should be conducted with three pumps operating, reserving one pump as a spare. Four pumps may be operated simultaneously, however.

Pump Nos. PTA, PTB, PTC and PTD each rated at 850 gpm.

1 Pump Operating	=	850 gpm (1,214 bbl/hr.)
2 Pumps Operating	=	1,700 gpm (2,429 bbl/hr.)
3 Pumps Operating	=	2,550 gpm (3,643 bbl/hr.)
4 Pumps Operating	=	3,400 gpm (4,857 bbl/hr.)

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8.0 SAFETY ASPECTS

8.1 LIQUID LEVEL ALARMS FOR TANKS

8.1.1 Metering Tank

8.1.1.1 A High-High level switch OSHH-5802 closes the tank inlet valves MOV-8 and MOV-9 at the 39.5 foot level and alarms at the MCP (LAHH-5802).

8.1.1.2 A High level switch LSH-5802 alarms at the 38.5 foot level at the MCP (LAH-5802-1) and the WCP (Wharf LAH-5802-2).

8.1.1.3 A Low level switch LSL-5802 stops the tank mixer AMA at the 4.0 foot level and alarms at the MCP (LAL-5802).

8.1.1.4 A Low-Low level switch LSLL-5802 stops the Barge Loading, Tank to Tank transfer and Blending Pumps PTA, PTB, PTC and PTD at the 3.0 foot level and alarms at the MCP (LALL-5802).

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8.1.2 Storage Tank No. 1

8.1.2.1 A High-High level switch LSHH-5804 closes the tank inlet valves MOV-20 and MOV-28 at the 31.5 foot level and alarms at the MCP (LAHH-5805).

8.1.2.2 A High level switch LSH-5804 alarms at the 30.5 foot level at the MCP (LAH-5804).

8.1.2.3 A Low level switch LSL-5804 stops the Tank Mixers AlA, AlB, AlC and AlD at the 4.0 foot level and alarms at the MCP (LAL-5804).

8.1.2.4 A Low-Low level switch LSL-5804 stops the Tank Booster Pumps PlA, PlB and PlC at the 3.0 foot level and alarms at the MCP (LALL-5804).

8.1.3 Storage Tank No. 2

8.1.3.1 A High-High level switch LSHH-5806 closes the tank inlet valves MOV-37 and MOV-50 at the 31.5 foot level and alarms at the MCP (LAHH-5806).

8.1.3.2 A High level switch LSH-5806 alarms at the 30.5 foot level at the MCP (LAH-5806).

8.1.3.3 A Low level switch LSL-5806 stops the Tank Mixers A2A, A2B, A2C and A2D at the 4.0 foot level and alarms at the MCP (LAL-5804).

8.1.3.4 A Low-Low level switch LSL-5806 stops the Tank Booster Pumps P2A, P2B and P2C at the 3.0 foot level and alarms at the MCP (LALL-5806).

8.2 PRESSURE ALARMS AND PRESSURE RELIEF VALVES

8.2.1 Barge Loading, Tank to Tank Transfer and Blending Pumps PTA, PTB, PTC and PTD

8.2.1.1 Each pump is provided with a pump discharge high pressure switch which stops the pump at a pressure setting of 110 psig and alarms at the MCP as listed below:

<u>Pump</u>	<u>Switch</u>	<u>Alarm</u>
PTA	PSH-5511	PAH-5511
PTB	PSH-5514	PAH-5514
PTC	PSH-5519	PAH-5519
PTD	PSH-5522	PAH-5522

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- 8.2.1.2 Each pump suction strainer is equipped with a differential pressure switch set at Δ 5 psi which alarms at the MCP.

<u>Pump</u>	<u>Switch</u>	<u>Alarm</u>
PTA	PDIS-5509	PDAH-5509
PTB	PDIS-5512	PDAH-5512
PTC	PDIS-5517	PDAH-5517
PTD	PDIS-5520	PDAH-5520

- 8.2.1.3 The suction-header to the pump station is provided with a low suction pressure switch PSL-5516 which stops the pumps at a setting of 5 inches Hg vacuum.

- 8.2.1.4 Each pump is provided with a full flow relief valve set at 110 psig as listed below:

<u>Pump</u>	<u>Relief Valve</u>
PTA	RV-1
PTB	RV-2
PTC	RV-3
PTD	RV-4

8.4 Trestle Pipe Evacuation and Wharf Sump

8.4.1 The 12-inch diameter trestle piping is evacuated during non-barge handling periods. The wharf is equipped with a small (4.75 bbl) capacity sump and sump pump to minimize the quantity of oil stored on any of the over-water structures in accordance with U.S. Coast Guard Regulations.

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7.1.4.4 FUNCTIONAL SYSTEM DESCRIPTION NO. 3 TRANSFER TO STORAGE

On the following pages is a functional system description for transferring oil to storage. The first page is the unnumbered cover page, followed by an unnumbered index page, followed by 46 numbered pages of text.

FUNCTIONAL SYSTEM DESCRIPTION NO. 3

"TRANSFER TO STORAGE"

FOR

THE DETROIT EDISON COMPANY

BY

COMMONWEALTH ASSOCIATES INC.

FOR

MARYSVILLE TERMINAL FACILITY

ST. CLAIR COUNTY, MICHIGAN

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FUNCTIONAL SYSTEM DESCRIPTION NO. 3

INDEX

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1.0 SYSTEM FUNCTION

1.1 REFERENCE DIAGRAMS

The following P&ID's and schematic diagrams are attached in the back.

<u>NUMBER</u>	<u>TITLE</u>
P&ID, 6M-29 MTF	"Oil Wharf and Metering Tank"
P&ID, 6M-30 MTF	"Oil Storage Tank No. 1"
P&ID, 6M-163 MTF	"Oil Storage Tank No. 2"
Schematic Diagram FSD-2A	"Wharf On/Off Loading Facility"
Schematic Diagram FSD-3	"Transfer to Storage"

1.2 PRIMARY FUNCTION AND MODES

1.2.1 The primary function of the transfer facilities is to move fuel oil from tank to tank within the Marysville terminal. Each of the modes of operation is further explained in Section 4.0 of this FSD.

MODES OF OPERATION

- i Transfer from Metering Tank to Storage Tanks
- ii Transfer from Storage Tanks to Metering Tank
- iii Tank to Tank Transfer Among Storage Tanks
- iv Blending Operations

1.2.2 Transfer From Metering Tank To Storage Tanks

1.2.2.1 The transfer of fuel oil from the metering tank to the storage tanks is required when barge off-loading deliveries are received in the metering tank. It is required when Metering Stations MP-2 and MP-3 are out of service or when off-specification fuel oils are received from barges and require blending in the metering tank prior to transfer to storage.

1.2.2.2 Four (4) 850 gpm transfer pumps, identified as pumps PTA, PTB, PTC and PTD, are provided for transferring oil from the metering tank to Storage Tanks No. 1 or No. 2. One pump is normally reserved as a spare. A single 16-inch diameter suction line feeds the pumps from the metering tank. The transfer pumps discharge into the 12-inch diameter

metering tank header. Flow from the metering tank header can be directed to either storage tank via the 16-inch diameter tank discharge line or the 12-inch diameter tank fill line.

With the proper positioning of motorized valves, the transfer from the metering tank to the storage tanks can be conducted without interfering with mainline pumping, delivery of oil from the Sunoco pipeline, or tank to tank transfer operations.

1.2.3 Transfer From Storage Tanks To Metering Tanks

- 1.2.3.1 The transfer of fuel oil from the storage tanks to the metering tank is required in preparation for barge on-loading operations. Custody transfer metering of fuel oil for barge shipments from the Marysville terminal is conducted by tank gauging in the metering tank. The full barge load must be transferred to the metering tank prior to starting barge on-loading. The time required for the transfer operation must be prescheduled according to scheduled barge on-loading operations.

1.2.3.2 Transfer to the metering tank is accomplished by the use of booster pump stations; one per storage tank. Each booster pump station is equipped with three (3) 450 gpm centrifugal pumps, arranged in parallel. The pumps are identified as Pumps PlA, PlB and PlC for Tank No. 1 and P2A, P2B and P2C for Tank No. 2. The pump stations take suction from the respective storage tanks via a 16-inch tank discharge line. The booster pumps discharge into the 12-inch metering tank header which connects with two 10-inch metering tank fill lines.

1.2.3.3 The transfer of oil from a storage tank to the metering tank will preclude the use of that particular storage tank as a supply for mainline pumping to the Greenwood terminal. However, transfer operation will not interfere with the delivery of oil, via the Sunoco pipeline, to any of the storage tanks.

1.2.3.4 The (transfer to the metering tank) operation will preclude any tank to tank transfer operation and hot oil circulation through the metering tank during the transfer.

1.2.4 Tank To Tank Transfer Between Storage Tanks

- 1.2.4.1 The transfer of oil from one storage tank to any other storage tank can be accomplished by using the booster pump stations provided for each storage tank. A 12-inch tank to tank transfer header is provided to permit tank to tank transfer without interference with mainline pumping, delivery from Sunoco, or barge deliveries.
- 1.2.4.2 Each booster pump station is equipped with three 450 gpm centrifugal pumps. The maximum transfer rate is 1350 gpm (1,929 bbl/hr). The time required to transfer one full storage tank from the high level to the low-low level (approximately 345,450 bbl) equals 179 hours (7.46 days).
- 1.2.4.3 3-inch water drawoff valves are connected to an internal tank bottom sump located at the periphery of the tank. A tank slop collection truck can be contracted to remove water and solids that accumulate in the tanks.

1.2.4.4 During the tank to tank transfer operations the storage tank heating system may continue to operate until the level in the tank being emptied reaches the low-low level. At this point, the tank heater and pump shall be shut down manually. The oil heating system is further discussed in FSD No. 8, "Oil Heating System."

1.2.5 Blending Operations

1.2.5.1 The blending of off-specification residual fuel oils with lighter distillates, (Cutter-Stock) such as No. 1 or No. 2 fuel oil, to provide viscosity control or sulphur content dilution can be accomplished at the Marysville terminal within certain limitations.

1.2.5.2 Barge deliveries of off-specification residual fuel oil of high viscosity or high sulphur content can be blended by mixing with the Sunoco oil deliveries in any of the main storage tanks. Each storage tank is provided with four 75 hp tank mixers to provide agitation for blending.

1.2.5.3 Blending of off-specification barge receipts can be accomplished by dilution with cutter stock (No. 1 or No. 2 Fuel Oil) in the metering tank or in either of the storage tanks. The 14,600 bbl cutter stock tank is normally available as the source of supply of the blending distillate. If additional distillate is required for blending, truck deliveries must be prescheduled. The replenishing of the cutter stock tank with distillate to meet the Marysville Power Plant ignitor fluid requirements must also be taken into consideration when scheduling blending operations.

1.2.5.4 A 450 gpm centrifugal Cutter Stock Pump, PCS, is provided for truck unloading to replenish the cutter stock tank. The pump is manifolded for pumping from a truck to the cutter stock tank, or from the cutter stock tank to the metering tank, or to the metering tank header. When pumping from a truck to the metering tank, the residual oil in one of the 10-inch tank inlet pipes must be displaced into the tank. Likewise, when pumping cutter stock to one of the storage tanks, residual oil in the 12-inch metering tank header and the

12-inch tank fill lines must be displaced by cutter stock. The quantity of oil to be displaced and the time required must be taken into consideration when planning the blending operations.

1.2.5.5 Hot oil circulation may continue simultaneously with the blending operation. The effect of dilution of the residual oil in the hot oil circulation piping is negligible. The residual oil in the circulation system, normally within physical property specification, will serve partially to cut the stock to be blended.

1.2.5.6 The blending ratios required to achieve the desired mixture of cutter stock and residual fuel oil will depend upon the quantity and the physical properties of the barge deliveries.

It should be noted that dilution of off-specification fuel oil barge receipts can be accomplished in the main storage tanks by mixing with the Sunoco receipts. Additional dilution of this mixture can be accomplished in the storage tanks at the Greenwood terminal.

2.0 DESIGN CRITERIA

2.1 The listed design data establish the capabilities and limitations of the transfer to storage facilities as developed from the basic project criteria.

Minimum Allowable Viscosity of
Barge Receipts (No. 6 F.O.) = 2,500 SSU

Minimum Tank Storage
Temperature = 120°F

Metering Tank Data:

Gross Capacity @ 40 ft. Level = 67,435 bbl

Networking Capacity (Hi-Hi) -
(Low-Low) = 61,774 bbl

High-High Level @ 39.5 ft. = 66,591 bbl

High Level @ 38.5 ft. = 66,899 bbl

Low Level @ 4.0 ft. = 6,509 bbl

Low-Low Level @ 3.0 ft. = 4,817 bbl

Average bbl/ft. = 1,692 bbl/ft.

Storage Tanks 1 & 2 Data:

Gross Capacity @ 32.0 ft. = 402,000 bbl

Networking Capacity (Hi-Hi) -
(Low-Low) = 358,010 bbl

High-High Level @ 31.5 ft. = 395,700 bbl

High Level @ 30.5 ft. = 383,140 bbl

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Low Level @ 4.0 ft.	= 50,250 bbl
Low-Low Level @ 3.0 ft.	= 37,690 bbl
Average Capacity Per Foot of Height	= 12,560 bbl/ft.

Cutter Stock Tank Data:

Gross Capacity @ 32.0 ft.	= 16,047 bbl
Networking Capacity (Hi-Hi) - (Low-Low)	= 14,327 bbl
High-High Level @ 31.5 ft.	= 15,796 bbl
High Level @ 30.5 ft.	= 15,294 bbl
Low Level @ 4.0 ft.	= 1,972 bbl
Low-Low Level @ 3.0 ft.	= 1,469 bbl
Average Capacity Per Foot of Height	= 486.76 bbl/ft.

Transfer Pumps Data:

No. of Transfer Pumps	= 4 (3+1 Standby)
Capacity of Transfer Pumps, ea.	= 850 gpm (1214 bbl/hr.)
TDH of Transfer Pumps	= 100 psig
Capacity of Pump Station, 4 Pumps Operating	= 3,400 gpm (4857 bbl/hr.)
Time to Transfer 50,000 bbl, 3 Pumps Operating	= 13.73 hours
Time to Transfer 50,000 bbl, 4 Pumps Operating	= 10.29 hours
Pump Identification Number (P&ID No. 6M-29MTF)	= PTA, PTB, PTC and PTD

Booster Pumps Data::

No. of Booster Pumps	= 3 for Tank No. 1 3 for Tank No. 2
TDH of Booster Pumps	= 25 psi
Capacity of each Pump @ 25 psi	= 450 gpm (643 bbl/hr.)
Booster Pump station Capacity	= 1350 gpm (1929 bbl/hr.) (3 pumps operating)
Time to Transfer One Full Storage Tank (345,450 bbl)	= 179 hours (7.46 days)
Pump Identification Numbers -	
Tank No. 1 Pumps (See P&ID 6M-30MTF)	= P1A, P1B & P1C
Tank No. 2 Pumps (See P&ID 6M-163MTF)	= P2A, P2B & P2C

Cutter Stock Pump Data:

Number of Pumps	= One
TDH of Pump	= 25 psi
Capacity of Pump @ 25 psi	= 450 gpm (643 bbl/hr.)
Pump Identification Number (See P&ID 6M-29MTF)	= PCS

2.2 The transfer of residual oil from the metering tank to the storage tanks, utilizing the Transfer Pumps PTA, PTB, PTC and PTD, can be performed without interfering with delivery of fuel oil via the Sunoco pipeline or mainline pumping to

Greenwood terminal. These operations can be performed simultaneously by properly positioning the storage tank manifold valves along the metering tank header as described in Section 4.0 of this FSD.

2.3 The transfer of residual oil from either storage tank to the metering tank in preparation for barge on-loading can be performed without interfering with the delivery of fuel oil via the Sunoco pipeline to the storage tank. Mainline pumping to Greenwood terminal cannot be performed from the same storage tank being used for transfer to the metering tank.

2.4 Mainline pumping to Greenwood terminal cannot be performed from the storage tank being emptied during tank to tank transfers.

2.5 Blending operations in the metering tank or in one of the storage tanks can be performed without interference with deliveries from the Sunoco pipeline or mainline pumping to Greenwood terminal. Blending in a storage tank will depend upon the availability of one of the storage tanks exclusively for this purpose.

3.0 SYSTEM COMPONENTS

3.1 OIL PIPING (ABOVEGROUND AND UNDERGROUND)

ASTM A-53B ERW Standard Weight.

3.2 PIPING INSULATION/COATINGS

Underground: High-temp. epoxy &
X-Tru-coat

Aboveground: 1 1/2-inch thick fiberglass
with aluminum jacketing,
electrically heat traced

3.3 Equipment No. - PTA, PTB, PTC, PTD

P&ID - 6M29MTF

Description - Barge Loading
Tank to Tank Transfer
Blending Pumps
5000 SSU
825 GPM @ 100 PSI TDH
10" Hg suction
690 RPM
Positive Displacement Screw Type
DeLaval Type 323F550
10x8x
Weight 4985#

Vendor - DeLaval Turbine Inc.
Trenton, New Jersey

PO - CDECO 401 Item 2

Quantity - 4

Piping Plan - 6M98MTF

Motor - Westinghouse
100 HP 690 RPM
Frame 449TS
3 Ø 60 Hz 460V
Insulation Class F PMR

3.4

Equipment No. - PCS

P&ID - 6M29MTF

Description - Cutter Stock Booster Pump
Worthington D1011 6x4x10
450 GPM @ 25 PSI TDH
Centrifugal 1760 RPM
SG @ PT .85 - .9
Viscosity @ PT - SSU 33-280
Ambient [F
Efficiency 67.2%
Max BHP 13
4.5 FT NPSH

Motor - General Electric TEFC
Frame 284U
15 HP 1800 RPM
3 Ø 6 Hz 460V

Vendor - Worthington Pump Corp.
Cleveland, Ohio

PO - CDECO 398 Item 2

Quantity - 1

Piping Plan - 6M97MTF

3.5

Equipment No. - PlA, PlB, PlC

P&ID - 6M30MTF

Description - Tank Booster Pumps
450 GPM @ 25 PSI TDH
1760 RPM
Centrifugal
Worthington D1011 6x4x10

Motor - General Electric TEFC
Frame 326U
30 HP, 1800 RPM
3 Ø 60 Hz 460V

Vendor - Worthington Pump Corp.
Cleveland, Ohio

PO - CDECO 398 Item 1

Quantity - 3

Piping Plant - 6M100 MTF

3.6

Equipment No. - PHM, PHS, PHI

P&ID - 6M30MTF

Description - Heater Circulation Pumps
(204.5)
200 GPM @ 100 PSI TDH
1780 RPM
Warren NVM0438LPM 4x3x
VWO43-L
Twin Screw Rotary
Oil Viscosity 5000 SSU
Differential 130 PSI

Vendor - W. R. Mitchell Co.
Plainwell, Michigan

PO - CDECO 415 Item 1

Quantity - 3

Piping Plan - 6M99MTF

Motor - AC TEFC
50 HP 1780 RPM
Frame 326T
3 Ø 60 Hz 460V
Insulation Class F
Service Factor 1.15

3.7

Equipment No. - ST-1, A1A, A1B, A1C, A1D

P&ID - 6M30MTF

Description - No. 6 Oil Storage Tank No. 1
and Mixers
300' Dia x 32' High
361,000 BBLs

Manufacturer/ Vendor Chicago Bridge and Iron Co.
Shaker Heights, Ohio

PO - CDECO 394 Item 2

Quantity - 1

Piping Plan - 6M96MTF

Mixer - Jensen Model 680 VA75

Motor Data - 75 HP - 1800 RPM 3Ø - 60 HZ,
480 volt Explosion Proof 365 -
"T" Frame

NEMA Design "B" Class NEMA 1,
Group "D", Div. 1

1.0 Service Factor Safety Factor 20%
(70% of Rated HP)

Motor Space Heater 120 volt
1 Ø - 60 HZ

3.8

Equipment No. - MT-1, AMA

P&ID - 6M29MTF

Description - Metering Tank & Mixer
110' Dia. x 40' High Cone Roof
64,300 BBLs

Manufacturer/ Vendor Chicago Bridge and Iron Co.
Shaker Heights, Ohio

PO - CDECO 325 Item 1

Quantity - 1 Lot

Piping Plan - 6M96MTF

Mixer - Jensen Model 650VA25

Motor Data - 25 HP - 1800 RPM 3Ø 60 HZ
230/460 volt

Explosion Proof Housing 284 -
"T" Frame

1.0 Service Factor Safety Factor
20% (70% of Rated HP)

NEMA Design "B" Class NEMA 1,
Group "D" - Division 1

Motor Space Heater 120 volt -
1 Ø - 60 HZ

3.9

Equipment No. - CST-1

P&ID - 6M29MTF

Description - Cutter Stock Tank
60' Dia. x 32' High
14,600 BBLs

Manufacturer/ Vendor Chicago Bridge and Iron Co.
Shaker Heights, Ohio

PO - CDECO 394 Item 1

Quantity - 1

Piping Plan - 6M96MTF

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4.0 MODES OF OPERATIONS

4.1 GENERAL

4.1.1 The operating procedures described here cover normal system preparation and operation for the listed modes. Alarms pertinent to the safety aspects of the systems are described in Section 9.0 of this FSD.

MODES OF OPERATION

- i Transfer from Metering Tank to Storage Tanks
- ii Transfer from Storage Tanks to Metering Tank
- iii Tank to Tank Transfer Among Storage Tanks
- iv Blending Operations

4.2 TRANSFER FROM METERING TANK TO STORAGE TANKS

4.2.1 System Preparation

4.2.1.1 Check that sufficient ullage space is available in the storage tank selected to receive the transfer from the metering tank. Take

into consideration the simultaneous receipt of oil from the Sunoco Pipeline to the storage tank, if applicable.

4.2.1.2 Check that the Cutter Stock supply system is isolated.

Close valve BL-4.

4.2.1.3 Take the required liquid level reading in the metering tank and determine the quantity of oil to be transferred.

4.2.1.4 Calculate the time required for the transfer operation using any or all of the Transfer Pumps PTA, PTB, PTC or PTD, each rated at 850 gpm (1214 bbl/hr.)

4.2.1.5 The metering tank and the storage tank hot oil circulation system may continue to operate during the transfer operation.

4.2.1.6 For this example procedure, assume that Tank No. 1 is used to receive the oil transfer from the metering tank.

4.2.1.7

The booster pump station for Tank No. 1 may continue to operate during the transfer operation.

4.2.1.8

Position the listed valves accordingly, in sequence.

Close Valves:

MOV-6

MOV-7

MOV-10

If filling Tank No. 1 through the 16-inch line, open valves:

MOV-19 and MOV-28

If filling Tank No. 1 through the 12-inch line, open valves:

MOV-20 and MOV-21.

4.2.2

System Operation

4.2.2.1

Start Transfer Pumps PTA, PTB, PTC or PTD in any sequence.

4.2.2.2

Stop the transfer pumps when the liquid level in the metering tank reaches 4'-6" so that the Low Level Switch (LSL-5802) will not trip out the Tank Mixer, AMA.

4.2.2.3

Close Valves MOV-10, MOV-28 and/or MOV-21.

4.2.2.4

Re-position all valves for the next mode of operation.

4.3

TRANSFER FROM STORAGE TANKS TO METERING TANK

4.3.1

This transfer operation is required when preparing for a barge on-loading operation (Ref. FSD-2, Wharf ON/OFF Loading Facility).

4.3.2 System Preparation

4.3.2.1 Select a storage tank containing a sufficient quantity of fuel oil for the capacity of the particular barge (Max. 50,000 bbl.).

For this example procedure, Tank No. 1 is selected as the source tank for the transfer.

4.3.2.2 The booster pump station for Tank No. 1 consists of three 450 gpm Pumps: PlA, PlB and PlC. These pumps transfer fuel oil to the metering tank. The booster pump station maximum transfer rate is 1350 gpm (1929 bbl/hr.). Use of the booster pumps for the transfer mode precludes mainline pumping to Greenwood from the selected storage tank.

4.3.2.3 The hot oil circulation system for the metering tank and the storage tank may continue to operate during the transfer operation.

4.3.2.4

Position the following valves in sequence:

Close Valves:

BL-4 (Cutter Stock Block Valve)

MOV-27

MOV-25

MOV-26

MOV-21

MOV-28

MOV-50

MOV-38

MOV-41

MOV-10

Open Valves:

MOV-6 and MOV-9

or

MOV-7 and MOV-8

The above valves shall be positioned so that flow to the metering tank is not counter to the flow of the circulating hot oil in the 10-inch metering tank supply lines.

4.3.3 System Operation

4.3.3.1 Open MOV-19 and start Booster Pumps PlA, PlB
and PlC in any sequence.

4.3.3.2 Stop booster pumps when metering tank is at
desired liquid level (observe level indicator
LI-5802-2 @MCP).

4.4 TANK TO TANK TRANSFER AMONG STORAGE TANKS

4.4.1 System Preparation

4.4.1.1 The transfer of oil between storage tanks is
accomplished by using the booster pump station.

4.4.1.2 During transfers of oil between storage
tanks, the tank receiving oil may simultan-
eously receive oil from the Sunoco pipeline
or be used as a source for pumping to
Greenwood.

4.4.1.3

For the purpose of this example procedure,
the following mode is assumed:

Oil is being transferred from Storage Tank
No. 1 to Storage Tank No. 2. Simultaneously
Tank No. 2 is receiving oil from Sunoco and
being used as the supply for mainline pumping.

4.4.1.4

Isolate the metering tank header by closing
the following valves:

MOV-10

MOV-6

MOV-7

MOV-28

MOV-21

MOV-24

MOV-50

MOV-38

MOV-41

MOV-45

4.4.1.5

Position the following valves in sequence:

Close Valves:

MOV-27

MOV-26

MOV-23

MOV-42

Open Valves:

MOV-19

MOV-25

MOV-40

MOV-37

4.4.1.6

Hot oil circulation for both storage tanks may continue during the transfer until the level in Tank No. 1 reaches 4 feet (Low-Level).

4.4.2

System Operation

4.4.2.1

Start Booster Pumps PlA, PlB and PlC in any sequence.

4.4.2.2

As the level in Storage Tank No. 1 approaches the Low-Level (4'-0") observe the liquid level alarm LAL-5804. At this alarm level, the Tank Mixers AlA, AlB, AlC and AlD will automatically stop by the action of the tank Low-Level switch LSL-5804. If it is not necessary to completely empty the storage tank, stop the booster pumps at any level above the Low-Level (4'-0"). The tank mixers and tank hot oil circulation should continue to operate to maintain the temperature of the remaining oil in the tank.

4.4.2.3

If it necessary to completely drain the storage tank, for maintenance or repair purposes, continue with the following procedures.

4.4.2.4

Continue draining the storage tank with the booster pumps. At the 4'-0" tank level the Low-Level switch LSL-5804 will stop the Tank Mixers AlA, AlB, AlC and AlD. Continue hot oil circulation and continue pumping with the booster pumps.

- 4.4.2.5 At the Low-Low Level (3'-0") the tank level switch LSL-5804 will stop the booster pumps. The action of this switch must be defeated electrically so that the booster pumps may continue to operate.
- 4.4.2.6 At approximately the 1'-10" level, stop the hot oil circulating system by stopping the Heater Circulating Pump PHS (or the standby pump PHI). Close Tank Valves GT-24, GT-25 and MOV-20.
- 4.4.2.7 The booster pumps should be stopped at a level about 18-inches to prevent taking air into the discharge line.
- 4.4.2.8 At the 18-inch level the remaining oil in the storage tank (approx. 4000 bbl) can be removed by pumper truck via any of the three, 3-inch, tank water draw off valves.
- 4.4.2.9 The time required to complete the transfer of oil between storage tanks must be given careful consideration. For example, the time

required to transfer one foot of oil in a storage tank, with three booster pumps operating, is 6.5 hours.

4.5 BLENDING OPERATIONS

4.5.1 The blending of off-specification residual fuel oils delivered by barges can be accomplished by mixing with acceptable residual fuel oil in any one of the storage tanks if sufficient quantities of acceptable fuel oil are available to achieve the desired physical properties after mixing. In this case, the normal operating procedure is to transfer the fuel oil from the barge direct to storage as described in FSD-2.

4.5.2 This section describes the procedure for blending barge deliveries in the metering tank by diluting with Cutter Stock.

4.5.3 The procedures described herein do not cover the determination of the required blending ratios of Cutter Stock to residual fuel oil

for any particular barge delivery. However, the maximum quantity of Cutter Stock available for blending, without replenishing the Cutter Stock Tank, is approximately 14,327 bbl. Igniter stock requirements for the Marysville Power Plant, must also be considered.

4.5.4 System Preparation

4.5.4.1 After the barge delivery has been received in the metering tank and the quantity of Cutter Stock required for blending has been determined, the hot oil circulation system for the metering tank must be deactivated.

4.5.4.2 Stop the Heater Circulating Pump PHM or the Standby Pump PHS.

Close the Hot Oil Circulating Valves GT-8, GT-9 and GT-10.

4.5.4.3

Close the following valves:

MOV-6	BL-1	MOV-50
MOV-9	BL-3	MOV-38
MOV-10	MOV-28	MOV-41
	MOV-21	
	MOV-24	

Open the following valves:

MOV-15	MOV-5
BL-2	MOV-11
BL-4	MOV-12
MOV-7	
MOV-8	
MOV-4	

4.5.5

System Operation

4.5.5.1

Start the Cutter Stock Booster Pump PC.
Delivery will be approximately 450 gpm
(642 bbl/hr.)

- 4.5.5.2 Observe that the Metering Tank Mixer (AMA) is operating during the entire blending operation.
- 4.5.5.3 Immediately following the transfer of the required quantity of Cutter Stock to the metering tank, reactivate hot oil circulation to the metering tank and the 10-inch piping loop to the Wharf.
- 4.5.5.4 Samples of the blended mixture can be taken at the 6-inch diameter manual gauging hatch on the metering tank.
- 4.5.5.5 Position all valves for transfer from the metering tank to the storage tanks as described in Section 4.2 of this FSD.

5.0 LOGIC DIAGRAMS

5.1 The following control logic diagrams are inserted in this section for reference. The diagrams cover the control logic for all major items of controlled equipment at Marysville Terminal, including those items specifically relating to this FSD.

5.2	<u>Drawing No.</u>	<u>Title</u>
	6M-480MTF	Logic Diagram Sheet No. 1, Marysville
	6M-481MTF	Logic Diagram Sheet No. 2, Marysville
	6M-482MTF	Logic Diagram Sheet No. 3, Marysville
	6M-483MTF	Logic Diagram Sheet No. 4, Marysville

6.0 SYSTEM INTERFACES

6.1 TRANSFER FROM, METERING TANK TO STORAGE TANKS

6.1.1 The piping system for this mode starts at the metering tank discharge valve MOV-10 and terminates at the selected storage inlet valves:

MOV-19 or MOV-20 for Tank No. 1

MOV-36 or MOV-37 for Tank No. 2

6.1.2 The interface with the Cutter Stock supply is at valve BL-4.

6.1.3 The interface with the oil supply from Sunoco is at valves: MOV-22, MOV-45, and MOV-39.

6.1.4 The interface with the booster pump discharge headers is at valve MOV-24 for Tank No. 1 booster pump station and valve MOV-41 for Tank No. 2 booster pump station.

6.2 TRANSFER FROM STORAGE TANKS TO METERING TANK

6.2.1 The piping system for this mode starts at the outlet valve for the selected storage tank:

Tank No. 1; MOV-19

Tank No. 2; MOV-36

and ends at the selected inlet valve to the metering tank:

MOV-8 or MOV-9

6.2.2 The interface with the barge on/off loading piping system is at valves:

MOV-11 and MOV-12

BL-5 and BL-6

6.2.3 The interface with the Cutter Stock supply is at valve BL-4.

6.2.4 The interface with the tank to tank transfer header is at valves:

MOV-23, MOV-25, MOV-40 and MOV-42

6.2.5 The interface with the mainline pumping system is at valves:

MOV-26 and MOV-43

6.3 TANK TO TANK TRANSFER AMONG STORAGE TANKS

6.3.1 The piping system for this mode begins at the outlet valve of the tank being emptied and ends at the inlet valve of the tank being filled as follows:

Tank No. 1; Outlet MOV-19

Tank No. 2; Inlet MOV-36 or MOV-37

Tank No. 2; Outlet MOV-36

Tank No. 1; Inlet MOV-19 or MOV-20

6.3.2 The interface at the line heater header for mainline pumping is at valves MOV-26 and MOV-43.

6.3.3 The interface with the oil supply from Sunoco on the river crossing header is at valves MOV-22, MOV-45, and MOV-39.

6.4 BLENDING OPERATIONS

6.4.1 The piping system for this mode starts at the Cutter Stock outlet valve MOV-15 and terminates at the selected inlet valve at the metering tank MOV-8 or MOV-9.

6.4.2 The interface with the barge on/off loading piping system is at valves:

MOV-11 and MOV-12

BL-5 and BL-6

7.0 LIMITATIONS

7.1 The following limitations affect the scheduling of operations at Marysville Terminal.

7.1.1 The following operations may be performed simultaneously:

1. Barge off-loading direct to any one of the storage tanks.
2. Delivery of oil from Sunoco to any of the storage tanks.
3. Mainline pumping to Greenwood from any oil storage tank.
4. Tank to tank transfer between storage tanks.

7.1.2 The following operations may not be performed simultaneously:

1. Barge off-loading and Barge on-loading.
2. Barge on-loading and blending operations.

3. Barge on-loading and transfer to the metering tank from a storage tank.

4. Barge off-loading to a storage tank and transfer from the metering tank to a storage tank.

7.2 TIME/FLOWRATE LIMITATIONS

7.2.1 Transfer from Metering Tank to Storage Tanks

Maximum transfer rate (4) transfer pumps running
= 4857 bbl/hr (3400 gpm)

Time to transfer 50,000 bbl = 10.29 hrs.

7.2.2 Transfer from Storage Tank to Metering Tank

Maximum transfer rate (3) booster pumps running =
1929 bbl/hr (1350 gpm)

Time to transfer 50,000 bbl = 25.92 hrs.

7.2.3 Tank to Tank Transfer Among Storage Tanks

Maximum transfer rate (3) booster pumps running =
1929 bbl/hr (1350 gpm)

Time to transfer on full storage tank 402,000 bbl
= 208 hrs. = 8.68 days

7.2.4 Blending Operations

Maximum transfer rate of Cutter Stock to blending
tank, one only Cutter Stock pump at 643 bbl/hr
(450 gpm).

Time to transfer one full Cutter Stock tank
(14,327 bbl) = 22.28 hrs.

Examined by the U.S. Coast Guard
Captain of the Port Detroit
Date _____
Signed THK

8.0 SAFETY ASPECTS

8.1 LIQUID LEVEL ALARMS FOR TANKS

8.1.2 Cutter Stock Tank

8.1.2.1 A High-High level switch LSH-5803 closes the tank inlet/outlet valve MOV-15 at the 31.5 foot level and alarms at the MCP (LAHH-5803).

8.1.2.2 A High level switch LSH-5803 alarms at the 30.5 foot level at the MCP (LAH-5803-1) and at the truck unloading station panel (LAH-5803-2).

8.1.2.3 A Low level switch LSL-5803 alarms at the 4.0 foot level at the MCP (LAL-5803).

8.1.2.3 A Low-Low level switch LSLL-5803 stops the Cutter Stock Booster Pump PCS at the 3.0 foot level and alarms at the MCP (LALL-5803).

8.1.3 Metering Tank

8.1.3.1 A High-High level switch LSHH-5802 closes the tank inlet valves MOV-8 and MOV-9 at the 39.5 foot level and alarms at the MCP (LAHH-5802).

8.1.3.2 A High level switch LSH-5802 alarms at the 38.5 foot level at the MCP (LAH-5802-1) and the WCP (Wharf LAH-5802-2).

8.1.3.3 A Low level switch LSL-5802 stops the tank mixer AMA at the 4.0 foot level and alarms at the MCP (LAL-5802).

8.1.3.4 A Low-Low level switch LSLL-5802 stops the Barge Loading, Tank to Tank transfer and Blending Pumps PTA, PTB, PTC and PTD at the 3.0 foot level and alarms at the MCP (LALL-5802).

8.1.4 Storage Tank No. 1

8.1.4.1 A High-High level switch LSHH-5804 closes the tank inlet valves MOV-20 and MOV-28 at the 31.5 foot level and alarms at the MCP (LAHH-5805).

8.1.4.2 A High level switch LSH-5804 alarms at the 30.5 foot level at the MCP (LAH-5804).

8.1.4.3 A Low level switch LSL-5804 stops the Tank Mixers AlA, AlB, AlC and AlD at the 4.0 foot level and alarms at the MCP (LAL-5804).

8.1.4.4 A Low-Low level switch LSL-5804 stops the Tank
Booster Pumps P1A, P1B and P1C at the 3.0 foot
level and alarms at the MCP (LALL-5804).

8.1.5 Storage Tank No. 2

8.1.5.1 A High-High level switch LSHH-5806 closes the
tank inlet valves MOV-37 and MOV-50 at the 31.5 foot
level and alarms at the MCP (LAHH-5806).

8.1.5.2 A High level switch LSH-5806 alarms at the 30.5 foot
level at the MCP (LAH-5806).

8.1.5.3 A Low level switch LSL-5806 stops the Tank Mixers
A2A, A2B, A2C and A2D at the 4.0 foot level and
alarms at the MCP (LAL-5804).

8.1.5.4 A Low-Low level switch LSL-5806 stops the Tank
Booster Pumps P2A, P2B and P2C at the 3.0 foot
level and alarms at the MCP (LALL-5806).

8.2.1.3 The suction-header to the pump station is provided with a low suction pressure switch PSL-5516 which stops the pumps at a setting of 5" Hg vacuum.

8.2.1.4 Each pump is provided with a full flow relief valve set at 110 psig as listed below:

<u>Pump</u>	<u>Relief Valve</u>
PTA	RV-1
PTB	RV-2
PTC	RV-3
PTD	RV-4

8.2.2 Cutter Stock Booster Pump Station

8.2.2.1 The pump is provided with a discharge header high pressure switch PSH-5504 set at 35 psi which alarms at the MCP (PAH-5504).

8.2.2.2 The pump discharge air eliminator is provided with a level switch which stops the pump automatically when pump takes on air.

8.2.2.3 The pump is provided with a low suction pressure switch PSL-5502 set at 0 psig which alarms at the MCP (PAL-5502).

8.2.3 Booster Pump Stations

Tank No. 1 Pumps P1A, P1B and P1C

Tank No. 2 Pumps P2A, P2B and P2C

8.2.3.1 Each pump station discharge header is equipped with a high pressure switch (PSH-5545) and (PSH-5586) set at 40 psig and alarms at the MCP (PAH-5545) and (PAH-5586) respectively.

8.2.3.2 Each pump station is equipped with a low suction pressure switch (PSL-5538) and (PSL-5578) set at 5" psig and alarms at the MCP (PAL-5538) and (PSL-5578) respectively.

8.2.3.3 All booster pump suction strainers are provided with differential pressure switches set at 5 psid each alarming at the MCP as listed below:

<u>Pump</u>	<u>Pressure Switch</u>	<u>Alarm</u>
P1A	PDIS-5539	PDAH-5539
P1B	PDIS-5541	PDAH-5541
P1C	PDIS-5543	PDAH-5543
P2A	PDIS-5580	PDAH-5580
P2B	PDIS-5582	PDAH-5582
P2C	PDIS-5584	PDAH-5584

7.2 - EMERGENCY NOTIFICATION PHONE LIST

1. Oil Spill Response Organization (OSRO) (313) 849-2333
Marine Pollution Control, see 14 below for additional OSROs
2. National Response Center Phone: 1-800-424-8802
3. Primary QI: Joe Neruda
Work Phone (810) 326-6356
Pager Number
Evening Phone:
4. Secondary QI: Steve Down
Work Phone (810) 326-6355
Pager Number
Evening Phone:
5. U.S. Coast Guard (Coast Guard Sector Detroit)
Detroit. 7:00 AM-3:30 PM Mon-Friday (313) 568-9580
After hours call the Coast Guard Group (313) 568-9524
Ask to have the MSO Duty Officer contacted.

The Duty Officer will determine the need for the facility to continue with notifications of local Emergency Management System numbers listed below.

6. Local Response Team: Marysville Fire Dept.
24 Hour Phone: (810) 364-6611
7. Marysville Fire Chief 911
8. St. Clair County Sheriff (810) 987-1710 or
Local Emergency Planning Committee (810) 985-8115
9. State Emergency Response Commission: (800) 292-4706 (24 Hour)
10. State Police 911
11. Michigan Department Natural Resources & Environment
Pollution Emergency Alerting System (PEAS) (800) 292-4706
12. Local Water Supply and Wastewater Treatment System: (810) 364-8460
(Marysville Water Filtration Plant)

7.2 - EMERGENCY NOTIFICATION PHONE LIST (cont.)

13: Hospitals

Mercy	(810) 985-1500
Port Huron	(810) 987-5000
River District	(810) 329-7111

14. Contractors Oil Spill Response Organization (OSRO)

Primary OSRO Marine Pollution Control	(800) 521-8232
Inland Waters	(800) 992-9118

15. Facility Coordinator:	Shift Supervisor
24 Hour Phone:	(810) 364-9390

16. Weather report	Edison Intranet
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17. Local evacuation will be handled by the Local Emergency Response Committee, so phone numbers for radio and television stations are not provided.

18. For aerial surveys of a spill call Gateway Air Services, 989 775-3515.

7.3- EQUIPMENT LIST & RECORDS

7.3.1 - FACILITY RESPONSE TEAM (also see section 7.2. in this manual for contractors (OSRO) phone numbers)

The following personnel will make up the Marysville Wharf and Terminal Facility Response Team:

Manager North Area Plants	810	324-3201
Plant Superintendent	810	364-2235
Shift Supervisors	810	364-2235
Environmental Compliance Specialist (Qualified Individual)	810	326-6356
 Fax Machine	 810	 364-2210

7.3.1.2 OSRO EQUIPMENT LIST

Marysville Power Plant has contracted a certified OSRO for the purpose of spill mitigation and cleanup. The OSRO is responsible to provide and deploy the equipment. The OSRO certification and annual deployment verification will be found in section 2.3.3.10. The type of equipment available to the OSRO is listed following section 2.3.3.10.

Marine Pollution Control is our primary OSRO they have assured us they are a level A and can meet the 1 hour response via a subcontractor in our area. We also have access to MPC equipment stored at Eugene Welding Facility in Marysville.

7.4 - COMMUNICATIONS PLAN

1. Telephone

The plant is equipped with a telephone system for internal and external communications. Certain locations have dial capability for outside calls. Other locations are restricted to internal plant calls only.

An in-plant emergency phone number (ext 250) rings a dedicated phone located in the Switch Board Room. This room is staffed at all times when the plant is operating. Operators are trained to activate in-plant alarm notification systems and call appropriate emergency agencies. The dictated phone and emergency numbers are not permitted to be used for non-emergency communication.

2. Radio

Operations, Maintenance and Instrument Groups have two-way radios available for communication with remote locations or to provide back up for the plant telephone system. These include portable units and base stations that are located around the plant. All radios used by terminal personnel are intrinsically safe.

3. Alarms System

Fire horns are located throughout the plant building. They are activated by the plant operators when receiving a fire or evacuation alert notice according to the following code:

5 SHORT BLASTS	FIRE
7 SHORT BLASTS	EVACUATE
1 LONG BLAST	ALL CLEAR

7.5 - FACILITY SAFETY AND HEALTH PLAN

7.5.1 PRE-EMERGENCY PLANNING & COORDINATION WITH OUTSIDE PARTIES

All Detroit Edison employees at Marysville Terminal Facility shall receive, as a minimum, Hazwopper Level 1 Emergency Response (First Responder) Awareness training. In addition, at least one key employee, such as a Shift Supervisor or Environmental Compliance Specialist will be a certified On Scene Incident Commander or Qualified Individual.

The Shift Supervisor has the ultimate responsibility of declaring a hazardous material emergency. The Environmental Compliance Specialist will assist the On-Scene Incident Commander and if necessary assume the role of the On-Scene Incident Commander if the Shift Supervisor is unable to do so.

The On-Scene Incident Commander has the authority to arrange for outside hazmat team assistance. A complete list of names and phone numbers for outside contractors can be found in sections 2.1.3 or 7.2.

Where human health and/or environments are threatened, arrange for possible evacuation and/or notification of governmental officials. A complete list of numbers is listed in sections 2.1.3 or 7.2.

Contacts from outside media organizations should be directed to the Detroit Edison Corporate Communications office at 1-313-235-8807.

7.5.2 PERSONNEL ROLES, LINES OF AUTHORITY, TRAINING AND COMMUNICATIONS

7.5.2.1 PERSONNEL ROLES

The Shift Supervisor or Environmental Compliance Specialist will act as the On-Scene Incident commander. All other personnel will provide assistance as needed and directed. Detroit Edison personnel with Awareness Level training only should NOT directly engage a hazardous material spill.

7.5.2.2 LINES OF AUTHORITY

Chain of command for Marysville Power Plant can be found in Section 2.3.3.1. of this manual.

SECTION 7.5 - FACILITY SAFETY AND HEALTH PLAN (cont.)

7.5.2.3. TRAINING

All plant personnel will be trained at the First Responder Awareness Level. The following items are included as part of the training:

- Understand what hazardous materials are and the risks associated with them in an incident.
- Understand the potential outcomes associated with an emergency created when hazardous substances are present.
- The ability to recognize the presence of hazardous substances in an emergency.
- The ability to identify the hazardous substances, if possible.
- An understanding of the role of the first responder awareness individual as related to this emergency response plan for hazardous materials

In addition to the First Responder Awareness training, the facility will train at least one Shift Supervisor or the Environmental Compliance Specialist as On-Scene Incident Commanders. On-Scene Incident Commanders will receive a minimum of 32 hours of training. The following are included as part of this training:

- Emergency response definitions.
- Regulatory review and overview.
- Hazardous materials and wastes.
- Toxicology and health effects.
- Potential hazards to response team members.
- Contingency and emergency plans.
- Personnel protective equipment.

SECTION 7.5 - FACILITY SAFETY AND HEALTH PLAN (cont.)

7.5.2.4 COMMUNICATIONS

Telephones and two-way radios are used for both normal and emergency communications. All radios used by terminal personnel are intrinsically safe. In addition, a plant fire alarm signal is used for evacuation notifications.

7.5.3 EMERGENCY RECOGNITION AND PREVENTION

Any employee finding a hazardous materials spill must immediately contact the Shift Supervisor/leader on duty. The Shift Supervisor/leader will then contact the plant's Emergency Coordinator. Also, the Shift Supervisor/leader will determine if the spill should be classified as a HAZWOPER Incident.

External factors that may contribute to or cause a pollution incident have been investigated and evaluated by Company personnel. Actions to be taken during specific emergencies, such as power failure or flooding, have been reviewed in light of environmental concerns.

Generally, a power failure induced pollution incident is highly improbable. Most power plant pollutant sources are pressurized systems dependent upon motor-driven pumps. Hence, power outages will stop these systems.

Floods have not been a problem at this plant. However, water from a heavy rain or ruptured water system combined with a spill could flush oil or hazardous material from a spill into a runoff drain or waterway. To avoid this situation, immediate containment and clean up is mandatory for any spill.

7.5.4 SAFE DISTANCES

Safe distances and places of refuge will be determined by the On-Scene Incident Commander. The On-Scene Incident Commander may also order an evacuation of the site if the safety and/or health of response team members is threatened.

SECTION 7.5 - FACILITY SAFETY AND HEALTH PLAN (cont.)

7.5.5. EVACUATION PROCEDURES

Evacuation procedures for facility personnel are outlined in Marysville Power Plant Order No. M-7. A copy of Plant Order No. M-7 is in Section 7.5.9. The routes for evacuation of this facility are shown on the site plans in the back of this Section.

The evacuation of the local community will be conducted by the local Emergency Planning Committee or Marysville Fire Department. The phone numbers for these organizations can be found on the notification phone list in Section 2.0.1. or 7.2.

Addition information on personnel safety is found in Power Plant Order 52 a copy is also located after Section 7.5.10.

7.5.6 DECONTAMINATION

Outside response teams should be instructed to bring decontamination equipment. In an emergency plant safety showers can be used for decontamination.

7.5.7 EMERGENCY MEDICAL TREATMENT & FIRST AID

If it should become necessary to take or send an employee for emergency medical treatment, that employee should be sent to a hospital listed in Section 2.1.3 or 7.2.13 of this manual.

7.5 - FACILITY SAFETY AND HEALTH PLAN (cont.)

7.5.8. CRITIQUE OF RESPONSE AND FOLLOW UP

Upon completion of the response, a debriefing, a post-incident analysis, and a critique of the incident should be preformed. These termination activities are designed to ensure the personal safety of emergency response personnel and general public, establish a record of events, and ensure that lessons learned are shared by all those involved.

Debriefings should begin as soon as the emergency phase of the operation is completed and should cover the following subjects:

- Health information
- Equipment and apparatus exposure review
- Follow-up contact person
- Problems requiring action

Post-incident analysis involves a reconstruction of the incident to establish a clear picture of the events that took place during the incident. The post-incident analysis should focus on the following key topics:

- Command and control
- Tactical operations
- Resources
- Supports services

A critique of the incident should be conducted by the On-Scene Incident Commander. The objective of the critique is to improve response performance by improving efficiency and pinpointing weaknesses.

7.5.9 Marysville Power Plant Order M-7

A copy of Plant Order M-7 can be found on the next pages. This plant Order addresses Plant evacuation procedures. It was last revised 4/21/2006 and is 5 pages long, the site evacuation drawings are located after the plant order.

Marysville Power Plant Plant Order

Order #: M-7, Revision Date: 4/21/06

Subject: Emergency Fire Fighting & Plant Evacuation Procedures

Approved By: _____
Michael D Deegan

I SCOPE

The purpose of this order is to clearly state what procedures, alarms, and actions should be followed during a plant emergency. This would include emergencies such as fires, chemical releases, foul weather, bomb threats, or hazardous spills.

II GENERAL

It is the responsibility of plant management to ensure all personnel on the plant site are familiar with the procedures explained in this order. The type of emergency will determine what type of action is required by plant personnel. The Shift Supervisor will be the Incident Commander and take responsibility for deciding the course of action, procedures to follow, and contacts to be made.

The leader(s) of off-site groups, departments, and/or contractors performing work on the plant site are to be issued a two-way radio.

III RESPONSIBILITIES

In case of a plant emergency, The Shift Supervisor, serving as Incident Commander, or the Shift Work Leader on duty, is the person ultimately in charge of the incident, the procedures to be followed and the protection of site personnel. All personnel are to follow the Incident Commander's direction in the event of an incident.

In the absence of the Shift Supervisor and the Shift Work Leader, the Operator on duty is in charge of the incident until properly relieved. The Shift Supervisor and the on call Work Leader should be contacted and informed of the incident as soon as possible.

IV ALARMS

In the event of a fire or other emergency, all personnel on site will be notified of the incident via two-way radio communication. A minimum of two attempts must be made. Personnel working on site from other locations are to assemble in the area designated during their Pre Job Brief.

V FIRE BRIGADE

Marysville PP is staffed 7/24. Normally there will be two Operators on duty Monday through Friday, and one Operator covering weekends and Holidays.

Members of the fire brigade performing fire fighting duties will utilize hand held, portable fire extinguishers.

All members of the fire brigade are to have a two-way radio in their possession.

If possible, or practical, a Pre Job Brief will be held prior to deployment.

Members of the plant fire brigade are trained and intended to function as incipient stage fire responders only. Refer to "MIOSHA General Industry Safety Standard, Part 73, Fire Brigades"

"Incipient stage fire" means a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, class II standpipe, small hose systems 1 1/2" up to 125 gpm, and it does not require evasive actions, the donning of self contained breathing apparatus, or protective clothing.

Annual training for members of the plant fire brigade is the responsibility of the Plant Shift Supervisor. All members will receive annual training and education prior to fighting fire to ensure that they are capable of performing these duties in a safe and competent manner that does not present a hazard to themselves or others.

VI DEPLOYMENT OF THE FIRE BRIGADE

Per Power Plant Order 54, the Operating Authority must be notified immediately whenever a fire is discovered. Upon notification of a fire, the Operating Authority shall notify the local fire department (911) before responding to the fire. This is necessary because incipient stage fires can rapidly develop into structural stage fires.

In the event an Operator is working alone, the on-call Shift Supervisor or Work Leader must also be notified.

In the event a fire occurs, it's within the incipient stage, and can safely be extinguished, one Operator can respond. If the fire is beyond incipient stage, wait for outside help.

The local fire and police department have a key to the South Plant gate. Unless directed elsewhere, they will report to the front of the administrative building for further instructions.

VI DEPLOYMENT OF THE FIRE BRIGADE CONT'D

Unless prevented by safety issues, it is the responsibility of the Plant Operators to ensure adequate water supply and pressure (100psi) is available to the fire brigade/fire department. If water for fire fighting is required in the boiler house, open the two isolation valves located at the entrance doors to the Mill Room on the Turbine side Mezz. floor.

VII SUPPORT FUNCTIONS

Operators may be called upon to perform functions under the direction of the Incident Commander. These support functions may include:

- Ensure the building is evacuated and all personnel are accounted for
- Ensure the Fire Department is directed to the fire
- Ensure the logistical needs of the responders are met
- Perform first aid within the scope of their training
- Identify potential hazards that responders need to be aware of

VII NOTIFICATION PROCEDURES

The following is a sequential account of how a fire is to be reported and the assigned responsibilities concerning notification.

- The person discovering an incident will notify the Shift Operating Authority by phone at ext. 250 or by two-way radio. If notification is by two-way radio, ensure confirmation of your transmission is received.
- The person should report the exact location, type, and extent of the incident.
- The Operating Authority, upon receiving notification, will immediately contact the local Fire/Police Department (911) on an outside phone line. Unless directed otherwise, the Fire Department will access through the South Plant gate using their key. They will report to the Administrative building.
- The Operating Authority will notify St. Clair Power Plant Security of the incident. Request assistance, if needed.

During off hours, the Operating Authority will notify plant staff of the incident. In the event of a major fire, injury to personnel, or Plant evacuation notify the Fossil Gen "on call" Duty Person. Refer PPO #161.

Non-Operating personnel on site (Maintenance, Instrument, contractors, etc.) will be contacted face to face or by two-way radio with instructions on where to report.

VIII ELEVATORS

No one is to use the elevators during a plant emergency unless authorized to do so by the Plant Operating Authority.

IX FOUL WEATHER EMERGENCIES

In the event of severe foul weather all personnel on site will be notified, via two-way radio on where to report. This area will normally be the hallway in the Admin. Office Basement.

X BOMB THREATS

Any person receiving a bomb threat over the plant telephone should gather as much information as possible from the caller.

- Time of call
- Tone and type of voice (male/female, old/young)
- Exact words of person calling
- Specifics about the device (type, time of detonation, etc.)
- Any background noise

Employee receiving this type of call should immediately notify the Operating Authority.

The Operating Authority will:

- Notify the Supervisor and/or Work Leader. If incident is on the back-shifts, call at home.
- Notify Security at St. Clair Power Plant
- Call local police at 911

If the location of the bomb or potential bomb is known, all personnel should evacuate that area immediately.

If a plant evacuation is deemed necessary, follow the guidelines in section XII of this Plant Order.

XI CHEMICAL SPILLS

Anyone discovering a chemical spill should stay upwind of the area and immediately report the spill to the Operating Authority at 235 or by two way radio. If possible, and their safety is not jeopardized, the person discovering the spill should not leave the scene (other than to report the spill) until the area can be roped off. This person may act as a Safety Person until relieved by a qualified individual.

XI CHEMICAL SPILLS CONT'D

Instructions to be followed in the event of a chemical spill or emergency are listed in the Marysville Power Plant "Best Management Practices" program (BMP). This program is located in the Marysville Power Plant Environmental Response Manual.

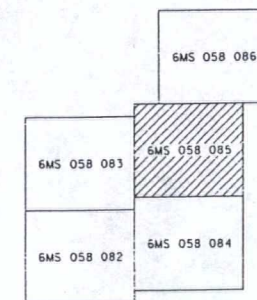
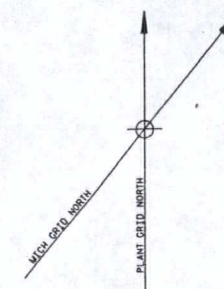
In the event of a chemical spill the Incident Commander will direct the responders on which procedures to follow.

XII PLANT EVACUATION PROCEDURES

In the event it is deemed necessary to evacuate the Plant, the following procedures will be followed.

- Notification of evacuation to all personnel on site is given by face to face or two way radio communication.
- Personnel on the upper floors of the plant are to use the stairways to evacuate. Do not use the elevators.
- All non-essential personnel will evacuate the plant and congregate in front of the Clubhouse.
- If possible, one Operator will remain in the Admin. Building Security Control Center.
- It is the responsibility of the Operating Authority to ensure all personnel are accounted for at the designated assembly area. In the event someone is missing, notify the Incident Commander.
- Evacuated personnel at the assembly area are to follow the directions of the Plant Operating Authority.
- If evacuation further from the plant is required, it will be ordered by the Incident Commander.
- No one is to leave the evacuation assembly area without the permission of the Incident Commander.
- An "all clear" notice will be given by face to face or two way radio communication.

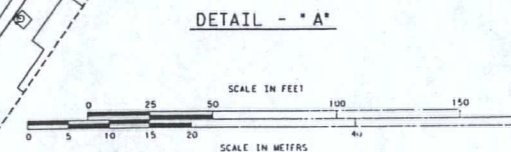
MICHAEL BAKER JR., INC.
CONSULTING ENGINEERS
BEAVER, PENNSYLVANIA



PLOT PLAN

CODE

DUCT RUNS	-----
BURIED CABLE	-----
SEWERS & DRAINS	-----
CONCRETE ENCASED	-----
AIR	-----
GAS	-----
GASOLINE	-----
OIL	-----
STEAM	-----
CITY WATER	-----
GEN SER WATER	-----
CITY SER WATER	-----
FIRE PROTECTION	-----
CHEMICAL LINES	-----
OILY WASTE	-----
POSITION DOUBTFUL	-----



Primary Evacuation Route
Secondary Evacuation Route

TO Gratiot Ave

Examined by the U.S. Coast Guard
Captain of the Port
Date _____
Signed *JBL*

PPO 52

Personnel Safety During
Plant Emergencies

7.5.10 Power Plant Order 52

A copy of Power Plant Order 52 is located on the next pages. The purpose of this order is to provide guidelines for personnel safety during in-plant emergencies. The order was last revised 03-23-04, and is 6 pages in length.

POWER PLANT ORDER NO. 52
PERSONNEL SAFETY DURING PLANT EMERGENCIES

1.0 PURPOSE

The purpose of this order is to establish a uniform procedure and guidelines for employees during an emergency at a power plant.

2.0 SCOPE

This order provides instruction for all Fossil Generation personnel, contractors, visitors or others on plant property for any emergency condition that may occur.

3.0 REFERENCES

- 3.1 DTE Energy Way, "Emergency Management"
- 3.2 Policies and Practices, EM 5, "Health and Safety", Paragraph 7
- 3.3 Power Plant Order No. 54, "Fire Protection"
- 3.4 Power Plant Order No. 206, "Compressed Gas Cylinders"
- 3.5 Power Plant Order No. 245, "Radiation Safety"
- 3.6 Department of Consumer and Industry Services, General Industry Safety Standards Commission, Safety Standards MIOSHA, Part 6, Fire Exits
- 3.7 Department of Consumer and Industry Services, General Industry Health Standards Commission, Health Standards MIOSHA, Part 432, Hazardous Waste Operations and Emergency Response (HAZWOPER)

4.0 PROCEDURES

- 4.1 Corporate Security provides a template for the Emergency Response Plan Handbook to be developed at each facility. The template is not mandatory, but the emergency procedures shall include all the content outlined in the template. A copy of the emergency procedures shall be provided to Corporate Security, Supervisor – Risk Prevention.
- 4.2 Emergency procedures shall be in agreement with other documentation, such as the Emergency Response Plan Handbook managed by Corporate Security and the Integrated Contingency Plan managed by the Environmental Management & Resources.
- 4.3 Emergency procedures may reference other procedures as long as the other procedures are readily available at the command post in an emergency.

- 4.4 Each power plant shall develop a written emergency and evacuation plan that will include as a minimum:
 - 4.4.1 Method for reporting a fire and other emergencies.
 - 4.4.2 Procedures for responding to the following emergencies at a minimum:
 - a. Fire (including referencing or incorporating the fire fighting plan required by PPO 54 Fire Protection, Paragraph 5.1.1)
 - b. Medical
 - c. Tornado or other severe weather requiring sheltering
 - d. Hazardous material emergency (in accordance with the HAZWOPER Standard)
 - e. Bomb Threat
 - f. Other security emergencies (e.g., act of terrorism, civil disturbance, workplace violence)
 - 4.4.3 Evacuation and sheltering procedures including establishing command posts, evacuation routes, points of assembly and accounting for people.
 - 4.4.4 Procedures to be followed by employees who remain to operate critical plant operations before they evacuate.
 - 4.4.5 A plan requiring at least one evacuation drill per year, an after action review of the drill, and the steps to be taken to assign and track to completion the correction of any deficiencies.
 - 4.4.6 Responsibility for documenting training and periodic review of emergency procedures.
 - 4.4.7 The names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.
 - 4.4.8 The required elements for responding to emergencies involving compressed gas cylinders found in PPO 206 Compressed Gas Cylinders, Paragraph 5.4.
 - 4.4.9 The location of all radioactive sources in accordance with PPO 245 Radiation Safety, Paragraph 5.1.4.
- 4.5 Where the emergency procedures require notification of specific employees, contractors, or regulatory agencies, the telephone numbers (e.g., home and work, day and night) shall be included or referenced by the procedure. If referenced, the contact telephone numbers shall be readily available at the command post in an emergency.
- 4.6 Elevator Use During Emergencies
 - 4.6.1 All visitors, contractors and DTE Energy employees shall immediately vacate elevators at the next available elevation.

- 4.6.2 In the event of an emergency, no individual shall use an elevator without the expressed authorization from the Shift Operating Authority.
- 4.6.3 The Shift Operating Authority may authorize incipient fire fighting personnel to use specific elevators to fight fires and evacuate injured personnel.
- 4.6.4 This authorization shall only be given after determining, based on the nature and extent of the emergency, that elevator use is safe and the elevator will retain its power supply.

5.0 ALARM SYSTEM

- 5.1 The following employee alarm signals are generic in nature to establish uniformity among power plants and are common to most areas within Fossil Generation:
 - Fire Signal – five short blasts on the call horn or siren.
 - Evacuation Signal – seven short blasts on the call horn or siren.
 - Take Shelter Signal – three short blasts on the call horn or siren.
 - All Clear Signal – one long blast on the call horn or siren.
- 5.2 Any variation of signals shall be defined in plant orders specific to that location and review with employees annually. Variation includes different signals than those listed above as well as additional signals for site-specific emergencies not listed above.
- 5.3 The alarms can be initiated and generated by any means that is practical and effective.
- 5.4 Alarms shall be discernable above background in all areas where employees are likely to be present and are affected by the emergency. Use the National Fire Protection Association's National Fire Alarm Code® (NFPA 72) as a guide.
- 5.5 The alarm signals described above should have a clearly discernable delay between blasts on the horn or siren. Since the alarms are repeated, it is essential that employees can tell the difference between the delay between blasts and the delay between repeated alarms. As a guideline, the delay between repeated alarms should be at least 3 times the delay between blasts.

6.0 RESPONSIBILITIES

- 6.1 The Plant Manager shall establish plant orders and instructions to implement these requirements.
- 6.2 The Plant Manager shall ensure that a sufficient number of persons are designated and trained to assist in the safe and orderly emergency evacuation of employees. Give special consideration to employees with disabilities, if applicable, when developing emergency procedures.

- 6.3 The Plant Manager shall ensure that a delegated representative review the emergency plan with each employee when the plan is initially developed, when an employee is newly assigned or hired, if an employee's responsibilities or designated actions under the plan change, or if the plan is changed.
- 6.4 The Plant Manager shall ensure that pre job briefings for non-headquartered support personnel include a review of the following:
 - Site alarms
 - Method for reporting a fire or other emergency
 - Evacuation and sheltering procedures including evacuation routes and assembly points.
- 6.5 The Plant Manager shall ensure that the emergency plan is kept on site and is made available for employee review.
- 6.6 The Plant Manager shall ensure that the plan is audited annually to ensure it is complete and accurate. (See Appendix A)
- 6.7 The Plant Manager shall provide a copy of each evacuation drill report to Corporate Security, Supervisor – Risk Prevention.
- 6.8 Each employee shall:
 - 6.8.1 Be familiar with emergency procedures and their duties under those procedures.
 - 6.8.2 Recognize plant emergency signals and know what to do when they are sounded.
 - 6.8.3 Know the nearest exit and appropriate evacuation route and alternate route to an exit at all times.
 - 6.8.4 Schedule and complete emergency training for assigned duties under the emergency procedure, if applicable.
 - 6.8.5 Participate in emergency drills.

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7/23/04
Date

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4/23/04
Date

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Technical Writer
Engineering Support Organization

4/28/04
Date

Approved By: K E Howard
Kenneth E. Howard
Director
Engineering Support Organization

4-29-04
Date

Appendix A

AUDIT CHECKLIST

1. The emergency plan is in agreement with the Emergency Response Plan Handbook and the Integrated Contingency Plan.
2. The plan identifies and describes the employee alarm system used on site.
3. The plan includes or references the following procedures:
 - a. Evacuation and Sheltering
 - Procedures to be followed by employees who remain to operate critical plant operations before they evacuate
 - Special considerations for employees with disabilities, if applicable
 - b. Fire
 - Fire Fighting Plan in accordance with PPO 54
 - c. Medical emergency
 - d. Tornado and severe weather
 - e. Hazardous material emergency
 - f. Compressed gas cylinder emergencies in accordance with PPO 206
 - g. Bomb threat and other security emergencies
4. Each procedure includes a description of what constitutes an emergency, how to report the emergency, the steps necessary to protect people, the tools and equipment provided to combat the emergency, required notifications, and follow-up actions.
5. The plan includes or references the location of all radioactive sources on site.
6. The plan requires an evacuation drill at least annually.
7. The plan includes who is responsible for documenting training and periodic review of emergency procedures.
8. The plan includes the names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.
9. There are a sufficient number of persons designated and trained to assist in the safe and orderly emergency evacuation of employees.
10. The plan is reviewed with each employee as required.
11. The emergency plan is available for employee review on site.
12. Employees are familiar with emergency procedures and their duties under those procedures.
13. Employees recognize plant emergency signals and know what to do when they are sounded.
14. Employees know the nearest exit and appropriate evacuation route and alternate route to an exit.



7.6 - ACRONYMS AND DEFINITIONS

A-SS	Assistant Shift Supervisor
ACP	Area Contingency Plan
APPO	Assistant Power Plant Operator
ASME	American Society of Mechanical Engineers
AST	Aboveground Storage Tank
BBLs	Barrels
BMP	Best Management Practices
BRPP	Belle River Power Plant
CAA	Clean Air Act
CFR	Code of Federal Regulations
COTP	Captain of the Port
CWA	Clean Water Act
DECO	Detroit Edison Company
DOT	Department of Transportation
ECS	Environmental Compliance Specialist
EPA	Environmental Protection Agency

7.6 - ACRONYMS AND DEFINITIONS cont.

ECR	Emergency Response Coordinator
ERAP	Emergency Response Action Plan
FRP	Facility Response Plan
FS	Fuel Supply
FSD	Functional System Description
FWPCA	Federal Water Pollution Control Act
GF	General Foreman
GLES	Great Lakes Environmental Services-oil spill cleanup contractor
GPM	Gallons Per Minute
HAZWOPER	Hazardous Waste Operations and Emergency Response
IWPC	Inland Water Pollution Control - oil spill cleanup contractor
LEPC	Local Emergency Planning Committee
MIT	Maintenance Improvement Team
MPC	Maintenance Improvement Team
MPC	Marine Pollution Control - oil spill cleanup contractor
MTF	Marysville Terminal Facility
MSO	Marine Safety Officer - United States Coast Guard

7.6 - ACRONYMS AND DEFINITIONS cont.

NCP	National Contingency Plan
NIVC	Navigation and Vessel Inspection Circular
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
OPA 90	Oil Pollution Act of 1990
OPS	Office of Pipeline Safety
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSRO	Oil Spill Removal Contractor
PIPEC	Pollution Incident Prevention and Emergency Control Plan
PPE	Personal Protective Equipment
PPO	Power Plant Operator
RCRA	Resource Conservation Recovery Act
RP	Responsible Party
PREP	National Preparedness for Response Exercise Program

7.6 - ACRONYMS AND DEFINITIONS cont.

QI	Qualified Individual
SCPP	St. Clair Power Plant
SARA	Superfund Amendments and Reauthorization Act
SERC	State Emergency Response Commission
SI	Surface Impoundments
SIC	Standard Industrial Code
SO	Supervising Operator
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasures
SS	Shift Supervisor
TTX	Tabletop Exercise
UL	Underwriters Laboratories
UST	Underground Storage Tank
USCG	United States Coast Guard
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency

MANUAL DISTRIBUTION

Manual Distribution and locations

(Marysville Wharf & Terminal facility, GWEC Pipeline and St. Clair Power Plant)

The 5yr review and re-submittal of the Marysville Wharf & Terminal Facility (Oil Spill Contingency Plan) was completed in February 2010. Copies of this Facility Response Plan (FRP) were distributed and should be stored at the following locations.

- Marysville Power Plant Control Room
- Marysville Power Plant Wharf & Terminal Facility
- GWEC Control Room
- USCG Sector Detroit
- EPA
- Primary OSRO MPC
- St. Clair County Emergency Planning Commission

The 5yr review and re-submittal of the GWEC Pipeline (Oil Spill Contingency Plan) was completed in March 2010. Copies of this Facility Response Plan (FRP) were distributed and should be stored at the following locations.

- GWEC Central Control Room
- GWEC Environmental Office
- Marysville Power Plant Control Room
- EPA
- USCG Sector Detroit
- Primary OSRO MPC
- St. Clair County Local Emergency Planning Commission

The 5yr review and re-submittal of the St. Clair Power Plant (Oil Spill Contingency Plan) was completed in February 2008. Copies of this Facility Response Plan (FRP) were distributed and should be stored at the following locations.

- St. Clair Power Plant Shift Supervisor Office
- St. Clair Power Plant Environmental Office
- USCG Sector Detroit
- EPA
- Primary OSRO MPC
- St. Clair County Emergency Planning Commission